

# **Greenfield Drivers:**

***Residential choice, transport, and the  
subjective experience of travel in the  
greenfield suburbs***

*A case study in Christchurch, New Zealand*

A thesis submitted in fulfilment  
of the requirements for the Degree of  
Master of Science in Geography at the  
University of Canterbury

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July 2015

## Abstract

Using greater Christchurch as a case study, this research seeks to understand the key drivers of residential choice of families with children who live in recently developed, low-density greenfield subdivisions. In particular, the research examines the role that transport-related implications play in families' choice of residence and location. It also explores the lived experience of the quotidian travel of these households, and the intrinsic value of their time in the car. While the research is situated in one particular location, it is designed to gain an understanding of urban processes and residents' experiences of these as applicable to broader settings.

Concerns about the pernicious environmental, fiscal, and wellbeing effects of sprawling urban form have been growing over the past few decades, inciting many cities including Christchurch to start shifting planning policies to try and achieve greater intensification and a denser development pattern. The 2010/2011 Christchurch earthquake sequence and its destruction of thousands of homes however created huge pressure for housing development, the bulk of which is now occurring on greenfield sites on the peripheries of Christchurch City and its neighbouring towns.

Drawing on the insights provided by a wide body of both qualitative and quantitative literature on residential choice, transport and urban form, and mobilities literature as a basis, this research is interested in the attraction of these growing neighbourhoods to families, and puts the focus firmly on the attitudes, values, motivations, decisions, and lived experience of those who live in the growing suburbs of Christchurch.

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## Acknowledgements

First and foremost, a huge thank you to my supervisors, Professors Simon Kingham and Eric Pawson for your invaluable support, advice, chapter feedback and unwavering faith. I am extremely grateful to you both for the time, patience, energy, and thought you have contributed.

I am also grateful to Associate Professor David Conradson for your feedback and support, particularly towards the end of this project.

My thanks go also to the participants who gave time out of their busy lives to participate in this research. I value the perspectives shared and have learned so much.

Finally, to my friends in the Geography Department who shared this ride—the victories, frustrations, late nights, skills, laughs and daily quizzes—thank you, it’s been a pleasure! Particular thanks to those who gave feedback on chapters, and helped with statistics, maps and myriad other things. I definitely could not have done this without you and am so grateful. I hope to either return the favour in future, or to pay it forward!

## Glossary of terms

**Christchurch Central City:** The central city of Christchurch as defined by the area within the Four Avenues of Moorhouse, Fitzgerald, Bealey and Deans Avenues. This is consistent with Statistics New Zealand’s definition of Central Christchurch, and is used in common parlance.

**Christchurch City:** The city of Christchurch as defined by the area under the jurisdiction of the Christchurch City Council – see context map provided on p.47.

**Greater Christchurch:** The combined area of the three districts of the Christchurch City Council, the Selwyn District Council, and the Waimakariri District Council, as used in the Canterbury Earthquake Recovery Act.



# Chapter 1: Introduction and research background

## Introduction

The research presented here seeks to understand the key drivers of residential choice of families with children who live in recently developed, low-density greenfield subdivisions. In particular, it examines the role that transport-related implications play in families' choice of residence and location. It also seeks to explore the lived experience of the quotidian travel of these households, and the intrinsic value of their time in the car. This thesis uses greater Christchurch as a case study. Given the very high levels of residential greenfield development in greater Christchurch over the past decade, and in particular since the earthquake sequence of 2010/2011, the city provides a useful research setting to explore questions relating to recent residential location decisions in the greenfields. While the research is situated in one particular location, it is designed to gain an understanding of urban processes and residents' experiences of these as applicable to broader settings.

## Research background

Like many large cities in Australasia, Christchurch has experienced high rates of low-density residential development. Greenfield growth on the city's edge has been mirrored by significant expansion of residential development on the fringes of the neighbouring towns of Rolleston and Rangiora. These function largely as commuter suburbs of Christchurch (UDS Forum, 2007) and sit within two of the fastest-growing local authority areas in the country, namely Selwyn and Waimakariri districts. While Christchurch has traditionally been a low-density city with its domestic architecture typified by standalone single-family homes on their own sections, this greenfield development has accelerated in the years since the earthquake sequence in 2010/2011 which destroyed over twelve thousand homes.

Concerns about the pernicious effects of sprawling urban form have been growing over the past few decades. Residential population density tends to decrease the further out from city centres it is. Low density development tends to decrease accessibility of everyday amenities, because it increases the

distance between destinations like shops, services, work places and educational facilities, leading to increased vehicle travel and a decrease in trips by alternative modes of travel like walking and cycling (Mattingly & Morrissey, 2014). The increase in automobile dependence comes with environmental problems including increased greenhouse gas emissions, air pollution and water pollution from roadway runoff (Preval, Chapman, & Howden-Chapman, 2010).

Dispersed greenfield development also comes with significant economic costs, usually borne by local authorities responsible for infrastructure provision (and thereby by all local ratepayers). Provision of infrastructure such as roading, sewerage, stormwater, drinking water, and power is far more expensive to provide per household for sprawling greenfield subdivisions than it is for infill or more intense development forms (Giannakodakis, 2013). This is not only in relation to the one-off cost of the infrastructure's original provision, which is partly (but generally not wholly) covered by developer contributions, but also to its ongoing maintenance and eventual replacement, the costs of which are borne by all ratepayers. Other impacts of peri-urban development include the consumption of productive agricultural land on the urban periphery (Mattingly & Morrissey, 2014), which is particularly pertinent to Christchurch given its situation on the fertile alluvial plains which have supported productive horticultural and agricultural industries since the city's founding (Christchurch City Council n.d.).

Transportation studies are increasingly investigating residential location choices because of their interdependence with daily travel choices (Schwanen & Mokhtarian, 2007). Recent research has found that beyond the external costs of dispersed development, transport-related economic burdens on those households living in peripheral areas undermine, and may even offset, the generally lower property costs in such areas (Mattingly & Morrissey, 2014; Preval et al., 2010; Dodson & Sipe, 2008).

With a growing realization of the negative impacts associated with sprawl, many New Zealand cities including Christchurch have in the past decade started shifting planning policies, aiming to encourage and facilitate intensification of existing land, and achieve a denser development pattern (Preval et al., 2010). In 2005, local authorities and other key organisations in Christchurch came together in partnership to develop the Urban Development Strategy (UDS), which was to set the

course for Greater Christchurch's future development to 2041. The public consultation process which attracted over 3,000 public submissions revealed a strong preference from the community to limit new development in greenfield areas and to concentrate future development within existing urban areas (UDS Forum, 2007). The UDS included a plan for the staged release of greenfield sites to avoid stimulating demand for rural living. The policy and statutory processes necessary to embed and implement the UDS were not fully in place when the earthquakes occurred, and the process was halted.

Over 12,000 homes were destroyed or suffered serious damage during the 2010/2011 earthquake sequence, creating enormous pressure for housing construction in those areas of the city and region with stable land. In 2011 the Government directed the Environment Canterbury Regional Council to develop the Land Use Recovery Plan (LURP), which replaced the UDS when it was gazetted by the Canterbury Earthquake Recovery Minister in 2013. The LURP has a much weaker focus on infill development and provided an immediate release of greenfield land for development that exceeded the area slated for release under the UDS over the entire period to 2041. This essentially paves the way for far more dispersed greenfield development in the greater Christchurch region over the coming years. Between February 2011 and December 2014, 16,800 residential building consents were issued in greater Christchurch (Environment Canterbury, 2014). The majority of these were to replace existing housing stock, and the areas with the greatest growth in new housing were in the adjacent Selwyn and Waimakariri districts (Environment Canterbury, 2014).

The impacts of sprawl on the environment, the economy, energy use, population health, transport costs, and social wellbeing are well known, yet sprawl developments continue to be built at a great pace. As Preval et al. summarize (2010, p. 34):

*“given the health and social impacts of sprawl, including increased energy use, loss of productive time, reduced access to amenities, and reduced physical fitness (since many destinations cannot be reached by active transport), why do many households continue to look for houses in the outer suburbs?”*

Much of the research on residential choice takes a quantitative approach to explore property and location attributes sought by households, and the relative weights given to certain desirable and undesirable characteristics. While this body of research lends many valuable insights, it remains

somewhat one-dimensional in that it cannot understand the nuanced motivations, experiences, constraints and trade-offs of households in making the important decision of where to live. Furthermore, there is a substantial body of research on the impacts of housing location and urban land use characteristics on transport which examines how urban form characteristics like density and land use mixing are related to aggregate transport demand. Research in the US (Center for Neighborhood Technology, 2010), and more recently in Auckland, New Zealand (Mattingly & Morrissey, 2014) has quantified the economic implications of the transport needs associated with different housing locations in order to provide an understanding of combined housing and transport affordability. Overall, findings tend to show that more peripheral housing locations have higher transport costs, which often offset the lower housing costs generally associated with more distant locations. In many cases the additional travel expenditure in peripheral locations is so substantial that they are less affordable overall than more central locations (Mattingly & Morrissey, 2014).

The growing body of research on combined housing and transport affordability is an important step forward in understanding the implications of location, housing costs and urban land use characteristics on the financial wellbeing of households. However, the extent to which households are aware of such costs when making residential location decisions is still poorly understood.

Much of the quantitative transport research assumes that transport is a derived good—something that people simply tolerate in order to reach their destination. A more recent mobilities literature challenges this notion, and has demonstrated the implicit value and pleasure that many find in their day to day travel. This thesis draws on this body of literature as a means of gaining a deeper understanding of motivations associated with transport, location and travel behaviour.

Using the crucial insights provided by these different strands of literature as a basis, this research switches the perspective of these urban and housing dynamics away from a quantitative approach, instead putting the focus firmly on the attitudes, values, motivations, decisions, and lived experience of those who live in the growing suburbs of Christchurch.

## Aims and research questions

This study takes a qualitative approach to elucidate how households take account of different property and locational attributes when searching for a home. It values the subjective experience and perspectives of families with children who recently moved to four fast-growing residential areas of greater Christchurch. It explores key reasons that these households were attracted to move there, and seeks to understand their experience of living there now—particularly with regard to their quotidian transport habits, needs and experiences. Four residential areas with high rates of growth were chosen as study sites—two within Christchurch City, and one in each of Selwyn and Waimakariri districts. The study areas have similar housing characteristics but lie at different distances from Christchurch’s Central City. The rationale for selecting the four areas is discussed when the methodology is outlined in Chapter 4.

The research question addressed is: What are the drivers of where and how people live in greater Christchurch’s growing greenfield suburbs?

The question is broken down into the following research objectives:

- What are family households' main reasons for selecting
  - a) their property?
  - b) their location?
- How much do they think about transport in relation to residential choice?
- How do they conceptualise location, distance, accessibility, and travel time?
- How do people experience their time spent in transit?

The research draws on a variety of literature strands, including studies of residential choice, early positivist transport and urban transport research, and the more recent mobilities literature which looks at subjective experience of travel.

## Thesis outline

This thesis is comprised of seven chapters. Beyond the introduction, Chapter 2 provides an overview of the key strands of research this study draws on. It begins with an overview of residential choice

literature which explores household's decision-making around housing choice, key property and locational attractors, and how these are valued differently by different household types. It then summarises some early positivist strands of transport research, and indicates how certain flawed assumptions of this approach remain operationalised today in policy instruments such as cost-benefit analysis. The research literature on relationships between urban form, landuse, and transport is then explored, before moving on to social science literature which values the subjective experience of transport, and the significant positive value many derive from their commute and other daily travel.

Following, Chapter 3 gives an overview of the particular location of this study—Christchurch City and the greater Christchurch area. It includes a brief history of Christchurch's urban development, and an outline of the significant impacts of the 2010/2011 earthquake series on its residential areas, central city, and transport network. It also describes the intentions of the locally-driven Greater Christchurch Urban Development Strategy to constrain greenfield development and prioritise infill development and intensification, and the disruption of this strategy by the earthquakes. The superseding of the UDS by the Land Use Recovery Plan, and its implications for Christchurch's urban development patterns are also described.

Chapter 4 outlines the methodology and methods of this study, discussing the reasons for the qualitative approach taken, the research tools used, and the analysis process employed to make sense of the rich data collected. It describes how the original mixed-methods approach was significantly modified as it became apparent over the course of the research that far richer insights into participants' experience and agency over residential choice, and transport behaviour and experience were gained through in-depth interviews, rather than through the quantitative tools of a travel diary and a questionnaire.

Chapter 5 explores research findings related to residential location choice in the broadest sense, such as: What were people looking for in their home? What was their experience of looking for a home in Christchurch? What key attributes were they seeking in a property? How did they weigh up different priorities? How did they negotiate the real-world constraints they faced?

The second findings section, Chapter 6, shifts focus to the transport-related implications of participants' residential location, beginning with a look at participants' general attitudes towards transport and vehicle travel in particular, and at the practical circumstances relating to householders' work commute. The focus then broadens to examine how and to what extent transport was taken into consideration in their initial decision to move to their current location, taking into account wider household travel needs. Following this, the subjective experience of travel is considered, including the desire for travel time and the considerable value many participants derived from time spent in transit.

Chapter 7 draws together the key findings in relation to the research objectives. It summarises the methodological, theoretical and empirical implications of the research in light the previous literatures. It also reflects on perspectives raised in the research that are particular to Christchurch, and on key findings that are applicable far more broadly in residential choice, transport and mobilities research, as well as raising some policy implications of the research.

## Chapter 2: Residential choice, transport and the experience of travel – A literature review

### Introduction

This literature review has three sections, beginning with an exploration of key literature on residential choice, much of which is based on quantitative methods. Following this, an overview of the positivist origins of transport research is provided, and selected literature on the complex interrelations between built environment, urban form, transport behaviours, and housing and location affordability. This provides an overview of the urban and policy dynamics within which residential choices, as well as supply-related decisions on transport and housing, are made. Finally, a more qualitative literature is explored in order to give insight to the subjective experience and intrinsic value of the time people spend in transit, and to challenge some of the conveniently simplistic assumptions made in positivist transport research.

### Residential choice

The first part of this literature review examines the residential choice literature. Residential choice comprises two major components: housing and its quality and attributes, and location and its varied implications for households (Mulder, 2007). Residential choice is studied across several disciplines including geography, economics, sociology and urban planning and is generally dominated by quantitative research approaches. Mulder (2007, p. 165) provides a useful definition of residential choice as “behaviour with respect to residential mobility, migration, location choice and housing quality.” Residential choice therefore is incredibly multifaceted, with households needing to weigh up extraordinarily complex, interrelated and often competing considerations (Eliasson, 2010). Because this research focuses on households with children, findings related to this type of household are highlighted.

The decision of which house to purchase (or rent) is an important and often highly stressful decision with potentially long-lasting implications for the household, particularly in the case of home purchase. In making this decision, households must balance not only different property and dwelling attributes, but also neighbourhood and wider locational qualities and implications. Further, the



household's complex activity patterns and their associated transport requirements must be weighed up with property location, accessibility, and time and financial constraints (Eliasson, 2010; Lee & Waddell, 2010). As Eliasson (2010, p. 138) summarises,

*A household's decisions of residential location, workplace, activities and travel pattern are an inextricably entangled weave of mutual interdependencies and constraints. Each of these choices is connected to all the others, and each one consists of not one single choice but a range of options, all depending on each other and with varying degrees of similarity and substitutability. Moreover, the choices are subject to a multitude of constraints, such as budget constraints on long and short term, time constraints and various scheduling constraints.*

Residential choice is a subject of almost paralysing complexity, but despite many challenges, research has brought an understanding of many of the key factors and processes influencing residential choice. Housing quality and location are important because they are strongly related to wellbeing and social status, and more specifically for our purposes here, to access to employment, social networks, schools and other amenities (Mulder, 2007). Furthermore, the aggregate decisions of households are both influenced by, and in turn influence, the urban and transport dynamics of our cities and collectively, yet often unconsciously, create the foundation on which the social, economic and environmental sustainability of our collective future rests.

Much of the research on residential location and transport uses the economic concept of utility maximisation (Lin, 2012), assuming households to be economically rational actors in the housing market. In this model, households weigh up different factors to come to a decision that maximises their utility within the constraints they face in their residential decision (Ærø, 2006). To do this requires a conscious consideration of the anticipated outcomes of every possible choice. This approach to understanding human decisions is rooted in neo-classical socio-economic theory and encompasses both 'push' and 'pull' factors of different environments and dwellings (Dickinson, 2013). As will be outlined below, costs and benefits in residential decisions may include considerations like dwelling size and quality, proximity to valued amenities, services and jobs, and access to friends, family and social networks.

It is clear from the literature that residential movement is commonly triggered by key life course events, including marriage or other relationship change, the birth of first or subsequent children

(Feijten, Hooimeijer, & Mulder, 2008; Lee & Waddell, 2010; Lin, 2012; Zondag & Pieters, 2005), and a change in job or study (Zondag & Pieters, 2005). The addition of household members such as a new baby is closely related to spatial mismatch, that is, a house becoming too big or too small after changes to the family structure. Spatial mismatch is another key push factor which increases the likelihood of residential change (Clark, Deurloo, & Dieleman, 1984).

Specific attributes of the house and property are one of the strongest factors, indeed often the primary factor considered by households (Ærø, 2006). Desirable attributes may include dwelling size, section size, warmth, character or aesthetics and quality. In Lee and Waddell's (2010) research based in the Puget Sound area of Washington state, USA, single-family homes were a high priority particularly for households with children. In his research based in Denmark, Ærø (2006) found that in a situation of unconstrained choice, a single-family house on its own section was found to be by far the most commonly desired dwelling type. Research based in the Netherlands found that, unsurprisingly, higher socio-economic status increases the probability of moving to a suburban location (Feijten et al., 2008).

Residential environmental type is another key factor that households consider when choosing a home. While some households, particularly single and older people (Lee & Waddell, 2010) are embracing central city living, there remains a strong desire for residential property in the suburbs. In Europe, the dynamics driving the desirability of suburban living include:

*the decline in environmental quality of the densely built city centre, due to traffic congestion, pollution, degradation of public spaces and reduction of safety; change in lifestyles, due in part to the increase in incomes, in favour of more spacious decentralised housing; the replacement of residential land use in the city centre by tertiary activities; the fact that housing improvement in the city centre costs more than new construction outside the city; and the housing supply strategies of real estate agents, which find less resistance in the more spacious out-of-town areas (Camagni, Gibelli, & Rigamonti, 2002, p. 201).*

Some of these elements are mirrored in New Zealand cities as described in the following chapter.

Preferred residential location type is closely related to different life course stages (Brun & Fagnani, 1994), with families with children more likely to live in the suburbs. However, lifestyle factors, in the sense of attitudes towards work and family also play a role as predictors of residential

environmental choice (Feijten et al., 2008), with work oriented households more likely to live in urban areas (Blaauboer, 2011).

Families with children have been found to be significantly less likely to move to cities, and are slightly more likely than other household types to move to suburban and rural areas (Feijten et al., 2008 and Courgeau, 1989; Kulu, 2008; Lindgren, 2003; Sandfur & Scott, 1981 as cited in Lin, 2012, p. 10) In two pieces of research located in the Netherlands, this was found to be not only due to families' preference for detached dwellings on individual land plots, but also due to the family-oriented amenities commonly provided in suburban settings (Feijten et al., 2008; Blaauboer, 2011). Research has shown that attributes most highly valued by households with children include low density neighbourhoods, child-friendly housing, childcare facilities (Blaauboer, 2011), access to quality schools, low levels of noise, small town or rural areas (Pagliara, Preston, & Kim, 2010), open space like parks and sports fields (Feijten et al., 2008), and safety (Lin, 2012; Bootsma, 1995 as cited in Blaauboer, 2011, p. 1637). Conversely, the types of amenities typically provided by central cities, like large concentrations of high-skilled, specialised jobs, bars, restaurants, cinemas and other entertainment venues (Feijten et al., 2008) may be less relevant, or at least a lower priority, for households with young children.

Not only does physical neighbourhood form matter, but the socio-cultural attributes play a large role in location selection. Households tend to relocate to neighbourhoods with similar demographic and socio-economic attributes as themselves, and with similar lifestyles, tastes and norms (Bell, 1968 and Michelson, 1977 as cited in Ærø, 2006, p. 110). In the USA, households with children were also found by Lee and Waddell (2010) to seek out neighbourhoods with a high proportion of households with children.

Prior experience relating to neighbourhood type has a significant bearing on current neighbourhood preferences—that is, people tend to seek location types they are familiar with, for example, low density, suburban neighbourhoods) (Ærø, 2006; Lin, 2012; Feijten et al., 2008) and geographical location. There is a tendency to return to a particular area of a city where people are familiar with the amenities and surrounding locale, have emotional attachments, and may still have friends and family in the area (Feijten et al., 2008).

Even where proximity to a past place of residence is not a factor, research on housing search strategy has found that households typically search for properties within a few neighbourhoods (Aitken, 1987; Clark & Smith, 1982; Huff, 1986 and McPeake, 1998 as cited in Lin, 2012, p.4). Hooimeijer and van der Knaap (1994, as cited in Feijten et al., 2008, p. 144) coined the term *awareness space* to refer to the area that households identify with, based not necessarily on personal experience with an area, but potentially through information sources such as conversations with friends and acquaintances, and media. This concept of *awareness space* illustrates the limitations of the rational choice model, that is, households cannot possibly be well informed enough on the pros and cons of each residence or even broad location to make a truly rational choice.

Location choice then is influenced not only by general location characteristics and key local amenities, but also by factors personal to the household, such as proximity to family. Feelings of family solidarity, support and informal care arrangements (both in the sense of adult children caring for older parents, and grandparents helping out with childcare) drive the desire to live in close proximity to family members (Blaauboer, 2011; Mulder, 2007; Zhang, Engelman, & Agree, 2013). Families with children may place a greater value on proximity to grandparents, aunts and uncles (Mulder, 2007), and the need for childcare support from grandparents tends to be intensified in dual-earner households (Blaauboer, 2011). Residential moves which increase proximity to family members are made both by adult children and by their parents, though Zhang et al.'s research (2013) found it was more likely the move of adult children that resulted in greater familial proximity.

Location has obvious implications for the travel required to fulfil the quotidian needs of households to access work, educational opportunities, consumption and leisure. The range of often interdependent activity patterns in multi-person households are highly complex, and while economic approaches to understanding decision-making behaviour implicitly or explicitly assume a fully informed consumer, in real life the predicted activity pattern and its associated travel patterns and other constraints will not be precisely known at the time of decision (Eliasson, 2010).

Location choice is in part dependent on people's personal willingness to travel—a factor which has been shown to be heavily influenced by previous experience. That is, previous experience of long

commutes make people more likely to accept long commute times at future locations (Green, 1997 as cited in Lin, 2012, p. 11). Furthermore, Chen et al. (2009 as cited in Lin, 2012, p. 11) found that not only does past exposure to *negative* attributes like long commutes diminish people's sensitivity to them, but previous experience to *positive* attributes, like plentiful open space was found to increase people's demand for these attributes in subsequent residential choices. Both of these elements have strong implications for location choice because they increase the likelihood of suburban preference.

Research querying the explanatory power of location as a factor in residential choice has found somewhat mixed results. Ærø (2006) found that accessibility to recreational areas, public and private services and retail centres were important considerations in residential choice. On the other hand, Zondag and Pieters' (2005) research in the Netherlands found that accessibility (and its impact on travel burdens) was a significant but minor factor in household decision-making, while neighbourhood amenities, demographic developments, and particularly housing attributes had far greater explanatory power. People, it seems, are willing to travel long distances in order to live in the kind of dwelling and neighbourhood they desire.

Some attention has been paid to the effects of the increasing prevalence of dual-earner households on location choice. The evidence shows different and potentially competing dynamics at play, with Rose and Villeneuve's (1998) research finding that the second earner's income enabled households to afford houses in middle-class suburbs, while Skaburskis (1997 as cited in Mok, 2007, p. 724) found that increases in the second earner's income increased the odds of central-city living. In research which focussed on the influence of personal culture and attitudes, Bootsma (1998 as cited in Mulder 2007, p. 272) found that after accounting for family status and labour force participation, Dutch households with a stronger culture of work-orientation were more likely to live in urban areas, while those with a stronger family-orientation were more likely to live in the suburbs or in rural areas.

Substantial effort across a variety of disciplines has gone into understanding the myriad factors that influence residential choice, but there are some weaknesses in the body of research thus far. Firstly, due to the enormous complexity of a household's residential decision and wide range of circumstances in which they take place, the quantitative studies reviewed above by necessity

simplify and/or omit some of the potential variables in order to create a feasible model (Eliasson, 2010; Lee & Waddell, 2010).

A lot of residential choice and transport research keeps one factor fixed as the independent variable—for example, urban economics tends to keep the travel pattern fixed, whereas transport models assume fixed residential location to test its impact on destination, mode and route choice (Eliasson, 2010). Many of the studies querying the role of transport considerations in residential location choice assume a monocentric city form (Mok, 2007) and assume transport as a derived good, that is, as having no utility in and of itself (see for example Eliasson, 2010). This assumption will be questioned further in the next section. For our purposes, it should be noted that there is a dearth of residential choice research in the Australasian context. A notably large proportion of the research on residential choice is situated in the Netherlands, and it must be borne in mind that New Zealand's urban structure, transportation history and population density is in stark contrast with that of the Netherlands, potentially limiting the relevance of findings to the New Zealand context.

Much of the research also ignores real-life complexities on both the supply and demand side of the housing market, for example by assuming that households have full information, and the choice to purchase any property in a certain area (Lin, 2012). Real life pressures and time constraints are almost completely ignored, such as the need to make quick decisions in a dynamic and competitive property market. Quantitative research in this area tends to assume that a household is a “black box” able to be described by a single utility function (Mok, 2007) when in reality there are likely to be competing priorities and complex trade-offs and negotiations between household members (van de Coevering & Schwanen, 2006), the nuance of which may be usefully illuminated through qualitative research. Lastly, most datasets used in quantitative research capture data at a fixed point in time, whereas the present qualitative research based on in-depth interviews allows exploration of both the expectations of households at the time of residential purchase, and their subsequent experience and adjustments to regular destinations and travel habits. In the face of these limitations, this thesis which is based on in-depth face-to-face interviews seeks to elucidate the complexity and nuance of households' initial residential choice, but also of their experience of living

at their home since, and their conceptualisation of accessibility, transport, and subjective experience of time they spend in transit.

## Transport research—complements and conflicts

In this section, various bodies of research on transport are summarized in order to provide a spatial and policy context in which people's residential and transport choices are made. While this is in some ways a fairly disparate collection of research, the bodies of literature touched on provide a variety of perspectives to lend insight into the collective decisions made by households. Discussion later in the thesis will also draw on many of these strands of research and their sometimes incongruous findings to compare and contrast how participants conceptualised transport costs and benefits, accessibility, and subjective experience of their time in transit—and how these elements played a role in their residential decision-making process.

Much of early transport research, which rose to significance in the geography discipline in the late 1960s and early 1970s has its roots in the positivist approach. This tradition sought to understand transport in a scientific way, seeking to generalise human behaviour into 'laws' so that it could be reliably predicted (Cresswell & Merriman, 2011). Importantly, the approach considers transport as a 'derived good', that is, something demanded purely for the utility to be gained by accessing what lies at the destination, as opposed to a journey having any intrinsic value (Lyons et al., 2007 as cited in Edensor, 2011, p. 189). The fact that journeys by car can be enjoyable is ignored (Maxwell, 2001), and those who conduct mobility for mobility's sake such as the Sunday driver are considered anomalies "beyond the scope of spatial science" (Cresswell & Merriman, 2011, p. 3).

The assumption that time spent travelling is purely a cost still pervades transport planning approaches today (Jain & Lyons, 2008; Mokhtarian & Salomon, 2001) and is operationalised in the cost-benefit analyses carried out on proposed transport projects. These models place time spent travelling on the 'cost' side of the ledger. In a typical cost-benefit analysis of the proposed expansion of road capacity, a high proportion of the 'benefit' side of the equation is typically accounted for by the time savings projected for travellers, and given a monetary value (Mokhtarian & Salomon, 2001; Noland, 2001).

Transportation policy generally focuses on travel demand forecasts, and assumes landuse as an exogenous input, thus ignoring the feedback loops between transport provision and urban development patterns (Waddell, Ulfarsson, Franklin, & Lobb, 2007). A major element of this feedback loop is known as induced travel, a phenomenon which current transport policy fails to adequately take into account in its calculations and projections (Noland & Lem, 2002). Noland and Lem (2002, p. 2) explain:

*The theory behind induced travel is based upon the simple economic theory of supply and demand. Any increase in highway capacity (supply) reduces the generalised cost of travel, especially on congested highways, by reducing the time cost of travel. Travel time is the major component of variable costs experienced by those using private vehicles for travel. When any good (in this case travel) is reduced in cost, the quantity demanded of that good increases.*

Induced travel is the reason that new motorways often reach capacity in a shorter timeframe than predicted by travel demand forecasts (Cervero, 2003). The phenomenon operates in the short term through the increased *speeds* extra vehicle lane capacity confer which leads to higher demand for trips (Cervero, 2003). There is also an important medium- to long-term component to induced demand because transport infrastructure drives changes in landuse patterns (Cervero, 2003). For example, a motorway out of town may create pressures from property developers on local councils to allow residential developments on land now afforded access to the city via the new motorway. Because decisions on transport infrastructure and land use are often made at different levels of government or distinct, siloed ministries, there is inadequate account taken of the effect of each on the other.

## Land use, urban form and transport

A strong association between the built environment and travel behaviour has been established through both academic and policy research. The central hypothesis of this body of work is that land use characteristics like density and mixture of uses affect people's travel behaviour (Handy, 1996; Kitamura, Mokhtarian, & Laidet, 1997). Living in low density suburban locations is associated with travelling longer distances, and a heavier reliance on personal vehicles (Viggers & Howden-Chapman, 2011). The implication is that amending built environments in ways that discourage

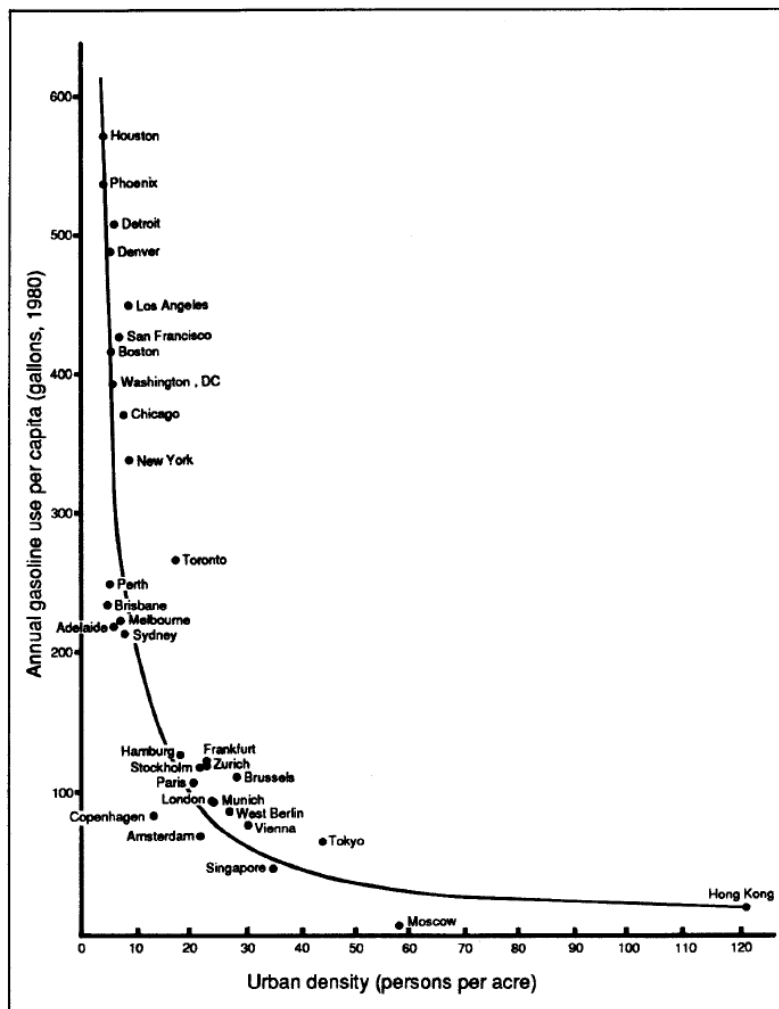


personal vehicle travel and facilitate alternative transport modes like public transport, walking and cycling, will achieve a reduction in private vehicle use (Lin, 2012).

The link between urban density and energy-use in transport was established in 1989 in a seminal piece of research by Newman and Kenworthy which found a strong relationship between the density of cities, and the energy they consumed for transport. The correlation between these two variables for 32 cities across North America, Asia, Europe and Australia is shown in Figure 1 below. There are multiple possible explanations for this correlation. The first is that as density increases, facilities, retail, services, employment and educational opportunities are simply located closer together, so that people need to travel shorter distances to fulfil their daily needs. A number of studies have shown that as the *intensity* of land use increases, and the *mixing* of land use increases, the number of trips by bike, by public transport and on foot increases (Ewing & Cervero, 2001 as cited in Schwanen & Mokhtarian, 2007, p. 172). The inverse is also true: as urban form becomes more diffuse and uses are separated, reliance on personal vehicles increases both in terms of number of trips taken and average trip length (Dieleman, Dijst, & Burghouwt, 2002). Diffuse urban development is more difficult to serve well with public transport due to the demand density being diluted, and the increased dispersion of destinations (Camagni et al., 2002). Conversely, active transport modes like walking and cycling become less feasible as distances between destinations increase as a function of both the segregation of uses (retail, residential, leisure facilities etc.) and lower density (Schwanen & Mokhtarian, 2005).

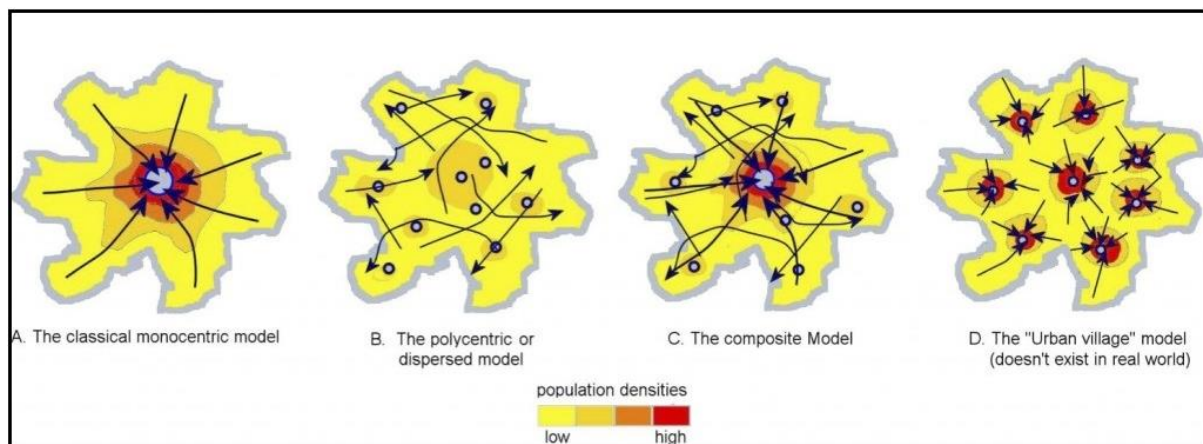
Urban structure also has an impact on travel behaviour. Many cities in the developed world are shifting from purely monocentric, or radial city forms, to polycentric or composite cities (Dieleman et al., 2002). These different urban forms are illustrated below in Figure 2. Evidence on the impact of urban structure on commute distance is mixed. Gordon and Wong (1985 as cited in Dieleman et al., 2002, p. 509) found that in the US, Germany and Switzerland work commute distances tend to be shorter in polycentric cities, though often with an accompanied mode shift from public transportation to personal vehicles. This may be in part because it is more difficult and expensive to provide effective, frequent public transport services to multiple major centres than a single concentrated centre. In contrast, a multivariate analysis of data from 31 cities found that a

concentration of jobs located in the central city was associated with shorter commute distances—but that commute *duration* increased (van de Coevering & Schwanen, 2006). The authors provide two explanations that likely contribute to this finding—firstly that due to congestion, average *speeds* are lower in the central city, and secondly, that workers may be more likely to get to work via public transport, cycling or walking which have lower average speeds than personal vehicles. As will be discussed later, Christchurch is arguably becoming a polycentric city, a trend which has been developing for the past two decades but recently intensified by the earthquakes' aftermath.



**Figure 1: Gasoline use per capita versus population density, 1980**

Source: Newman & Kenworthy, 1989



**Figure 2: Urban form models showing the effect of spatial distribution of jobs and population on commuting trip patterns**

Source: Nunns, 2014

While there is a lot of research on *commute* behaviour, the effect of urban form on travel distances for other trip purposes such as shopping and leisure are unknown (Dieleman et al., 2002). In New Zealand, the work commute only accounts for 19.6 percent of total kilometres travelled (Ministry of Transport, 2015), and this represents a significant research gap. The heavy focus on the commute journey, and the dearth of research on other trip purposes is mirrored in other areas of transport research. This bias is partly because the commute is generally the most scheduled and routine of all trip purposes (Redmond & Mokhtarian, 2001), with data far more readily available than for other journey types. It is also the type of trip that is most closely associated with peak traffic volumes and congestion (van der Coevering & Schwanen, 2006), which has significant financial, time and frustration costs.

## Preference and self-selection—problematizing the urban form/transport relationship

The nature of the relationship between travel behaviour and urban form may not be as straightforward as suggested by research such as Newman & Kenworthy's (1989). More recent studies have questioned to what extent diffuse landuse patterns *cause* higher vehicle ownership and reliance. They propose that the correlation is to some extent explained by self-selection driven by independent household and attitudinal characteristics. Research has found that households in

peripheral neighbourhoods tend to own more vehicles than their inner-city counterparts (Currie & Sendbergs, 2007 as cited in Mattingly & Morrissey, 2014, p. 70) , but rather than peripheral neighbourhoods *causing* higher car ownership, there is a hypothesis that households with a preference for personal vehicle travel self-sort into neighbourhoods that facilitate vehicle ownership and travel (Kitamura et al., 1997; Lin, 2012; Schwanen & Mokhtarian, 2007; Zhou & Kockelman, 2008) such as low-density suburban neighbourhoods with ample parking that are well-served by motorways. Household characteristics associated with higher vehicle use are considered below.

It has been shown that household characteristics and demographics play a significant role in transport behaviour, independent of built environment (Schwanen & Mokhtarian, 2005). Likewise, personality, lifestyle, and personal values and attitudes such as concern for the environment have been found to relate to choice of residential neighbourhood type (Schwanen & Mokhtarian, 2007). The impact of household characteristics on travel behaviour is particularly pertinent to the research at hand because the presence of children in a household strongly influences typical travel behaviour patterns.

Household characteristics correlated with higher personal vehicle use include high income, larger household size and the presence of children in the household (Dieleman et al., 2002). Families with children are more likely to own more cars, and use them for a larger number of trips due to the often complex activity patterns in these households (Dieleman et al., 2002). The fact that households with children are more likely to use the car more often comes as little surprise given the car's inherent space/time flexibility and security that public transport, cycling and walking cannot provide (van de Coevering & Schwanen, 2006). Car use in families with children is even higher when both partners have paid work, creating time pressures that lead to more frequent car-use (Dieleman et al., 2002). As explored in the previous section, families are also more likely to be attracted to suburban living due to the dwelling type, spaciousness and amenities typically provided by suburban areas (Schwanen & Mokhtarian, 2007), potentially intensifying the impact of self-selection on transport habits and residential location.

The challenge then is determining the relative explanatory weight that the two factors—built form and self-selection—have on travel habits. In their multivariate analysis looking at how urban form,

household attributes and travel behaviour interact in the Netherlands, Dieleman et al. (2002) found that both personal characteristics and residential environment had a “clear strong influence on modal choice and distance travelled” and were of about equal importance for both these measures (Dieleman et al., 2002 p. 524). Other research has found that travel-related attitudes and lifestyle preferences were in fact stronger predictors of travel behaviour than land use characteristics like density and mixture of uses (Kitamura et al., 1997).

Some studies probing the effect of self-selection in the built environment / travel behaviour correlation which controlled for attitudinal characteristics have concluded that the effect of the built environment on travel behaviour was insignificant (Zhou & Kockelman, 2008) while others have concluded that built environment and attitudinal variables had fairly comparable impact on travel behaviour (Bagley & Mokhtarian, 2002; Dieleman et al., 2002). Zondag and Pieters’ 2005 study in Austin, Texas on the other hand found that 58 percent of the difference in vehicle miles travelled were explained by household location while the remaining 42 percent was attributed to self-selection, lending weight to suggestions that land use policies and built environment be modified in order to decrease reliance on private vehicles. It would seem that while the evidence on the precise weight of these two factors—built environment and self-selection—in influencing travel behaviour is inconclusive, self-selection does play a significant role.

## Transport and housing affordability

Transport behaviour associated with location and accessibility has a significant bearing on the overall affordability of housing—after all, as Litman points out “a cheap house is not truly affordable if located in an area with high transportation costs. Conversely, households can afford to spend more on housing in an accessible, multi-modal neighborhood where it is possible to reduce vehicle expenses.” In general, land value decreases with distance from the central city, making property on city’s edge more affordable (Mattingly & Morrissey, 2014). This dynamic is often cited in debates on New Zealand’s housing affordability problem, with consistent calls for local authorities to free up land on the urban periphery to allow the development of affordable houses on cheaper peripheral land (Mattingly & Morrissey, 2014). Studies on housing affordability such as the annual Demographia survey (Demographia International, 2011) advocate that planning authorities free up land on urban

fringes as a way of addressing housing affordability. Similarly, the Parliamentary Commerce Committee's *Inquiry into housing affordability in New Zealand* (2008) and the New Zealand Productivity Commission's *Housing affordability Inquiry* (2012) called for more greenfield land to be released for residential development to enhance housing affordability.

Research is however increasingly challenging the true affordability of peripheral housing (Litman, 2015), as a household's savings on housing on the urban periphery may be offset by the ongoing increased costs of high car dependence—longer commuting distances, associated costs of petrol and vehicle maintenance, faster vehicle depreciation and for some households, the required purchase of an extra car (Mattingly & Morrissey, 2014). Indeed, research in Australia found that rising oil prices posed the greatest financial risk for those living in peripheral areas with high vehicle reliance and lower incomes (Dodson & Sipe, 2008 as cited in Mattingly & Morrissey, 2014, p. 70). In New Zealand, research by Viggers and Howden-Chapman (2011) found a higher rate of mortgagee sales in areas heavily reliant on private vehicles and poorly served by public transport.

A research paper by Mattingly and Morrissey (2014) entitled "Housing and transport expenditure: Socio-spatial indicators of affordability in Auckland" made significant waves in New Zealand including extensive coverage in mainstream media. Mattingly and Morrissey (2014) used rental cost data and Census travel-to-work data including distance and transport mode to create a Combined Housing and Transport Affordability indicator for Auckland. While property prices in Auckland's central city are significantly higher than suburbs further out, the researchers found that once household commute costs had been taken into account, housing in more central locations became significantly more affordable, and in many cases more affordable than locations further from central Auckland. It should be noted that Mattingly and Morrissey's Auckland study takes only *commute* distance and cost into account, rather than total household travel.

Another element Mattingly and Morrissey's (2014) study was unable to capture was the use of company vehicles for commuting, because the value of these to households are not captured by Census income data used by the researchers. 13.6 percent of people travelled to work in a work vehicle on Census day 2013 (Statistics NZ, 2015). Research commissioned by the New Zealand Transport agency found that on average, access to company cars in New Zealand incite those with

access to them to drive further, reduce use of alternative transport modes, and choose to live in more dispersed, vehicle dependent locations (Scott, Currie, & Tivendale, 2012). Data from previous studies summarized by Scott, Currie, & Tivendale (2012) showed that the average annual distance driven in company cars was typically double the average distance travelled in privately-owned vehicles.

The concern around combined housing and transport affordability is that households may be unaware of the true total costs of transport associated with different locations at the time they commit to a location. As discussed earlier, households' predicted activity patterns and associated transport needs can only be imprecisely known at the time of decision (Eliasson, 2010). Research by the American non-profit think-tank, Center for Neighbourhood Technology (2010) suggests that households are often unaware of the true total costs of personal vehicle ownership and running, because of the disaggregated nature of the costs. Unlike mortgage payments, total transport costs are difficult to track because they are paid in disaggregated ways: weekly or fortnightly petrol fills, annual or semi-annual insurance payments, periodic payments for licensing fees, annual or biannual Warrant of Fitness checks, depreciation, services and oil changes, and other maintenance, tire replacements every few years, unexpected repair bills and so forth. Potentially, many families purchase houses in peripheral locations and only realise later the true additional cost of the transport. Inspired in part by Mattingly and Morrissey's (2014) research, an online tool has been developed that allows people in Auckland, Wellington and Canterbury to calculate approximate transport costs associated with different residential locations based on the user's work address, their mode of transport and some basic information on housing metrics (see <http://affordability.org.nz/canterbury.html>). Currently a fairly rudimentary tool, its authors present it as a work in progress, and invite public feedback as part of its improvement and refinement (Adli & Raichev, n.d.).

In their study, Mattingly and Morrissey (2014) used data from the Automobile Association and national vehicle fleet statistics to calculate the typical fixed and variable costs of car ownership in New Zealand, as shown below in Table 1. Fixed cost is what someone needs to pay to have a road-legal, insured car sitting stationary in their driveway for a year. Variable cost is the total estimated

cost per kilometre driven, and includes petrol, tire wear and oil changes. Mattingly and Morrissey calculated a per-kilometre variable cost of 27.4 cents for the statistically average New Zealand passenger vehicle at 12 years old and with 2,200cc engine size. Their estimate of annual fixed costs of vehicle ownership is \$2,183. For a driver travelling the New Zealand average of 14,000 kilometres per year (Automobile Association, 2012) the average annual variable cost will be \$3,836, as calculated in Table 2. Table 3 below shows that on Mattingly and Morrissey's assumptions, the total cost of *owning and running* an average vehicle is \$17 per day, \$116 per week, \$502 per month and \$6,019 per year. As identified later, participants in this study were generally higher-earning households compared to median New Zealand household income, and therefore are likely to own newer cars with higher capital costs and steeper depreciation than average New Zealand household.



**Table 1: Annual *fixed* costs of vehicle ownership (assuming 12 year old, 2200 cc petrol car)**

(After Mattingly & Morrissey, 2014)

Component	Cost (\$NZD)
Vehicle value	\$7,500
Comprehensive insurance	\$645
Licensing (rego)	\$200
Warrant of fitness	\$45
Total outlay	\$8,435
Interest on outlay (at 9.4%)	\$793
Depreciation	\$500
<b>Total annual fixed costs</b>	<b>\$2,183</b>

**Table 2: NZ average *variable* cost of vehicle ownership and running (per vehicle)<sup>1</sup>**

	Per day	Per week	Per month	Per year
Average distance driven	38 km	268 km	1,167 km	14,000 km
<b>Total variable cost</b>	<b>\$11</b>	<b>\$74</b>	<b>\$320</b>	<b>\$3,836</b>

(After Mattingly & Morrissey, 2014 and NZ Automobile Association, 2012)

**Table 3: NZ average *total* cost of vehicle ownership and running (per vehicle)**

	Per day	Per week	Per month	Per year
<b>Variable cost</b>	<b>\$11</b>	<b>\$74</b>	<b>\$320</b>	<b>\$3,836</b>
<b>Fixed cost</b>	<b>\$6</b>	<b>\$42</b>	<b>\$182</b>	<b>\$2,183</b>
<b>Total cost</b>	<b>\$17</b>	<b>\$116</b>	<b>\$502</b>	<b>\$6,019</b>

(After Mattingly & Morrissey, 2014 and NZ Automobile Association, 2012)

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<sup>1</sup> The calculations in these tables are based on Mattingly & Morrissey's (2014) estimates of the per-kilometre cost of driving a typical NZ vehicle of \$0.274, and on the Automobile Association's statistic that the average New Zealand driver drives 14,000 kilometres per year. Costs are rounded to the nearest dollar for ease of reading.

## The impact of commuting on wellbeing

Another strand of research related to the costs of transport, and commuting in particular, relates not to the financial costs but rather to the social, psychological and physical wellbeing costs of commuting. Studies have found that people who have long commutes tend to experience higher blood pressure, suffer from more headaches and get frustrated more easily than people with shorter travel times (Montgomery, 2013). More generally, research by Stutzer and Frey (2008) involving 19,088 German commuters found that length of commute was strongly associated with general life satisfaction. Among many questions asked in the survey, commuters were asked to estimate the typical duration of their commute, and a standard wellbeing question: *“How satisfied are you with your life, all things considered?”* The research found that the longer the commute duration, the less satisfied people were. Of all the many variables measured in the wide-ranging survey, commute time was one of the strongest inverse predictors of life satisfaction levels (Stutzer & Frey, 2008).

Commute duration has also been linked to the strength of neighbourhood social ties, and community and civic involvement. A study in Boston and Atlanta in 2001 showed that the more neighbours drove to work, the fewer the friendships between neighbours (Freeman, 2001, as cited in Montgomery, 2013, p. 57). Those living in car-dependent neighbourhoods on the urban fringe were less likely to be politically involved (even low level involvement like signing petitions) and less likely to be involved in social groups (Freeman, 2001, as cited in Montgomery, 2013, p. 57).

Furthermore, research that used data collected over 10 years in Sweden found that long commute times were strongly correlated with divorce rates—indeed, couples where one partner’s commute was over 45 minutes each way had a 40 percent higher chance of separating or divorcing (Sandow, 2014).

Most would agree that a long commute in congested city conditions punctuated by traffic lights is less pleasant and more stressful than driving on an open road. This is a factor which quantitative studies reviewed fail to account for. It should also be borne in mind for the purposes of the present research that few Christchurch residents have commute times rivalling those of the 1.5 to 2-hour super-commutes of large European and American cities where many of these studies are based. There may well be a commute duration threshold, say of 20 minutes each way which has no or low

impacts on wellbeing, with the magnitude of pernicious effects of commuting becoming steeper after this threshold is breached, though to the best knowledge of the researcher no research has examined this possibility. As will be examined in the next section, the driving conditions rather than simply drive duration have a big impact on the stressfulness and/or enjoyability of driving and therefore could impact on the magnitude of negative impacts on psychological wellbeing.

## The value of time spent in transit and the subjective experience of driving

A distinct thread of research is beginning to seriously question the assumption that transport is a derived good (that is, a cost borne only to access the utility offered at the desired destination). In a significant break away from positivist transport geographies which wholly disregarded the subjective experience of people's time spent in transit, the more recent mobilities literature, grounded in the cultural turn in the social sciences makes the traveller the focus of investigation (Merriman, 2012).

As Cresswell and Merriman (2011, p. 5) summarise:

*We do not want to leave the commuter listening to the radio as a marginal curiosity. Rather we want to make her central to our interests by asking exactly what happens on the move. How is mobile time and space filled with liveliness? The mobile worlds that are labelled dead, irrational, dysfunctional by transport geographers and others come alive when they become the focus of our attention.*

Indeed, if we are to understand the motivations and decision-making behaviour of people as they relate to transport, we must understand their subjective experience of time spent travelling and the "intense feelings, passions and embodied experiences associated with automobility" (Sheller, 2004, p. 221). This section reviews a different body of research literature which seeks to understand the subjective experience of transport, and in doing so problematises the assumption that travel is purely a derived good, and that time spent in transit is purely a cost, rather than having benefits and value in its own right (Cresswell & Merriman, 2011). Indeed, much mobilities research has sought to challenge and disrupt popular and academic discourses which "represent commuting as a dystopian, alienating practice" (Edensor, 2011, p. 189). This different body of research which finds many positive elements of commute and of time spent in transit may go some way to explain the perhaps

counter-intuitive decisions made by so many households that empirical analytical studies, and cost-benefit analysis methodology favoured by current transport policy, fail to capture.

### The desire for daily travel

A large number of studies find that there is a widespread desire to spend time each day travelling. A study by Redmond and Mokhtarian (2001) probed participants' ideal commute time in the absence of the real-life constraints they face, and asked whether their current commute was longer or shorter than they would like in an ideal world. The authors found that 16 minutes was the average length of commute people wished for, and while those with a long commute had a strong tendency to desire a shorter commute time, there was, perhaps surprisingly, a significant number of participants who wished for a longer commute. Almost no participants chose a zero commute time, and almost half the participants preferred a commute of twenty minutes or more (Redmond & Mokhtarian, 2001). Research by Jain and Lyons (2008) found a similar desired average commute time of between 20 and 30 minutes for most participants. The fact that there is a desire to spend a certain amount of time daily on commuting is further strengthened by research which invites participants to reflect on the option of teleporting to their destinations (see Mokhtarian & Salomon, 2001). Most responses to the option were quite negative, with respondents remarking on the value of time spent travelling as important for 'sorting things out in your head' (Watts & Lyons, 2011, p. 109), as explored further below. The valued sense of independence and alone time that is typical of most people's commute is highlighted nicely [if in a gendered fashion] by Abler et al. (1971, p. 253 as cited in Cresswell & Merriman, 2011, p. 3), describing the commuter who "has relative peace and quiet twice a day, a radio to listen to, and the feeling that for a while at least he is the boss. If his job were to move next door to his house he would probably move".

The findings of a certain amount of desired daily travel are broadly in line with research that found that travel time budgets remain fairly constant at around one hour per day across culture, nation and historical period (Zahavi & Ryan, 1980, and Zahavi & Talvitie, 1980 as cited in Noland & Lem, 2002, p. 5). Crucially, the average amount of time devoted to travel daily is unaffected by travel mode and speed, so technology which increases travel speed generally serves to increase distance

travelled rather than to result in time savings on travel (Gordon & Richardson, 1994 as cited in Noland & Lem, 2002, p. 5; Lyons, 2014; Zondag & Pieters, 2005). This has potentially serious implications for the construction or capacity extensions of transport infrastructure like motorways to catalyse population shifts at increasing distances from the city.

### Driving as transition time

Numerous studies have looked at how people perceive and experience the time spent commuting, and explore the positive value they derive from it. The positive aspects of commuting frequently mentioned included having time to relax (Edensor, 2011); listen to music, podcasts or talking books (Redmond & Mokhtarian, 2001); the commute as a transition between home and work which provides opportunity to mentally prepare for the destination activity, meeting, social engagement, or work day ahead (Jain & Lyons, 2008; Mokhtarian & Salomon, 2001); and the commute home as a space to decompress at the end of the day (Redmond & Mokhtarian, 2001).

The commute as 'transition time' is valued by many as important creative and personal time, as well as a welcome boundary between home and work. Participants in a study by Jain and Lyons (2008 p. 86) talked about the need to "physically experience crossing space in time to achieve the sense of distance and difference" between their workplace and home life, as well as using the time for reflection and 'down time'—an enforced period used to process previous activities like work meetings, stressors, and mentally prepare for their "different social identity at the destination" (Jain & Lyons, 2008, p. 86) and to decompress at the end of the day. Numerous other studies' findings echoed the value of 'transition time', including Edensor (2001), Mokhtarian & Salomon (2001), and Redmond and Mokhtarian (2001). Women with children in particular have been found to utilise the commute home in the evening to "shed the burdens of work and prepare for the demands of home life" (Pazy et al., 1996; and Richter, 1990 as cited in Jain & Lyons, 2008, p. 85). One might surmise that fathers taking on a significant proportion of domestic responsibilities and/or childcare would also particularly value this time. Jain and Lyons (2008) found that it was not unusual for participants to make their journey home longer than necessary, in order to have enough time to unwind from

work and mentally prepare to step into their different roles at home—therefore also potentially benefitting others like children or partners.

For many people, time spent commuting provides an opportunity for valuable activities that would otherwise be threatened by ‘time squeeze’ and crowded out by competing demands of the day (Edensor, 2011; Mokhtarian & Salomon, 2001). Mobile professionals interviewed by Mokhtarian and Salomon (2001, p. 702) mentioned that long trips were the “only time for thinking” available to them and that they highly value “the chance to catch up” on important but often neglected tasks. Travel time may provide the only opportunity for certain relaxing activities—for example Bull (2000 as cited in Jain & Lyons 2008, p. 85) found that for some people, travel time is the only time for listening to music of their choice, and that this consideration may even affect an individual’s choice of mode and journey duration.

### The car as a soundscape

The emphasis placed on music and sound by participants in research on subjective experience of the commute makes this worth delving into a little deeper. Michael Bull has done extensive research that finds the car a personalised soundscape, a capsule where the driver (and other passengers where present) have total control over the soundscape of the car. Indeed, Bull (2001, p. 187) describes the car as the “one of the most powerful listening environments today, as one of the few places where you can listen to whatever you like, as loud as you like, without being concerned about disturbing others, and even singing along at the top of your voice”. In his in-depth research on soundscapes in the car, Bull notes that many people automatically switch on their radio on entering the car, and drivers often described a feeling of discomfort when there was no music or radio, but only the sound of the car (Bull, 2004). The use of sound technologies in the car has been tied to forms of control over oneself and one’s environment, a fact which has been cited as a key reason why many drivers prefer to drive alone (Bull, 2004). Bull notes that “[t]he experience of immersion in sound is thus enhanced by sole occupancy, which also permits the driver to have enhanced feelings of control and management of their environment, mood, thoughts and space beyond the gaze of ‘others’” (2004, p. 247). Such positive experience of time spent driving has a potentially strong

influence on the amount of driving people are willing to conduct, and therefore may play a role in residential choice.

### The car as a caring and relational space

Another element of travel in the car overlooked by positivist research is the car as a potential caring and social space. For parents engaged in childcare, many trips are made for the children, and a great deal of care and love is implicit in these trips in and of themselves (Maxwell, 2001). Moreover, time in the car with their children is often considered by parents to be a valuable touch-point in the day. For both children and their parents, the car provides a confined space in which extended discussions and conversations can take place (Merriman, 2012), and where each can expect fuller (though not undivided) attention from the other than may be found in other situations of everyday life (Taylor & Swan, 2005 as cited in Eric Laurier et al., 2008, p. 12). It is generally a time when a parent is (with the exception of needing to pay attention to driving) available to children to talk and engage with, rather than being absorbed in other activities such as cooking, cleaning, organising and conducting the myriad other responsibilities demanded by running a household (Laurier et al., 2008).

For adults too, the time spent in the car is often valuable for connecting with each other, for conducting conversations which otherwise may not occur. As Laurier et al. (2008, p. 7) wryly observe, “alongside the central activity of driving, once you add a passenger cars become places of talk and places where the expectation, unlike an elevator, is that we will talk”. There is a fixity in the duration of the trip that is known more or less to all parties which allows the broaching of topics as suited to the expected time available for conversation. Moreover, as aptly put by Merriman (2012, p. 65):

*The car’s spatial arrangement facilitates particular kinds of conversations and hinders others, as occupants sit side-by-side in rows rather than face-to-face. Moments of silence are common—sometimes awkward, sometimes comfortable—but the unfolding view, the spatial confinement, the side-by-side alignment, and the expectant temporalities of the journey enable and give rise to particular kinds of conversations.*

The fact that the attention to the road demanded by driving precludes regular eye contact, some (particularly men according to the authors) find potentially sensitive, profound or awkward issues or

topics of conversation easier to broach (Laurier & Lorimer, 2014). As Laurier et al. (2008, p. 17)

summarise:

*The car becomes a good place for certain sorts of conversations: the very kind that might generate pauses, need pauses, and yet want those pauses not to become too uncomfortable. By way of comparison, think of how Freud sat with his back to his patients, or of the importance of walking for certain kinds of slow, contemplative conversing. On long car journeys, the physical confines of the setting are thus a useful place to raise difficult issues. Individuals cannot walk away from the conversation, and the stretched out silence that the car enables allows for slow and considered responses to complex or difficult issues.*

The value of car travel as an opportunity for quality relational engagement is, again, likely to influence the amount and type of travel people are willing to conduct, which may have implications for residential and locational choice.

## The pleasure of driving

Many people value driving purely for the embodied pleasures it affords. In qualitative research seeking to understand embodied experience of car travel, participants spoke of feelings of mastery and control over a vehicle (Mokhtarian & Salomon, 2001), gliding smoothly around corners, enjoying the sense of speed and movement, a driver lulled into relaxation by the rhythmic passing of power lines swishing by (Edensor, 2011, p. 199). From ethnographic research, we know that one of the things key to the quality of the driving experience is “a sense of ongoing movement, without stopping, through the world” (Watts & Lyons, 2011, p.109). A participant quote from Edensor’s research (2011, p. 199) illustrates well the sensuous experience of driving at its best:

*During the week if it’s a sunny day and the windows are down and there’s a cool song on the radio/CD, the road is clear... you feel alive with the corners that you take... probably a little faster than normal... it’s just you and the road, anything could happen, you enjoy the ride as much as possible, drinking in the feeling it gives you.*

Many of the pleasurable elements described, not coincidentally, form the imagery so often depicted in advertising for cars—power, freedom, autonomy, mastery and speed (Lupton, 1999, p. 62)—an idealised driving experience uncurtailed by congestion, roadworks, traffic lights and the myriad other disruptions to unfettered movement. The peak hour commute is typified by the disruption of the smooth movement so central to the enjoyment of car travel, (Lupton, 1999; Miller, 2001; Shaw &



Docherty, 2014). Similarly, post-quake Christchurch is a place in which many trips across the city have their predictability, routine and ease frustrated by an array of roadworks, detours, and street reconfigurations.

The frustration of being ‘stuck going nowhere’ is such that many research participants, when given the choice between travelling in congested conditions via a direct route, and driving a longer distance to arrive at the destination at higher average speed but actually taking a greater amount of time, would choose the latter option (Fitt, 2014). Fitt’s work seems to indicate that it may not be the actual time being wasted in the car that is important, but rather the *feeling* of time being wasted. As Watts and Lyons (2011, p. 110) observe, “the experience of travel time can be stretched or compressed”, a fact that undermines the obsessive imperative of reducing journey times (Jain & Lyons, 2008, p. 83) that is so pervasive in cost-benefit analysis underpinning decisions on transport investment.

## Conclusion

The subjective experience and enjoyment of time in the car is unacknowledged in a lot of research seeking to understand transport-related decisions, including residential choice. The variety of useful activities that are conducted concurrently with driving are generally ignored by both transport policy, and in much quantitative research on travel. Findings of the mobilities research reviewed above imply that subjective experience of driving may play an important role in transport-related decisions, both in terms of how enjoyment of driving (or lack thereof) may influence the original decision on residential choice, and how their experience of travel may lead to different adaptive travel behaviours participants may undertake after moving to their residence, such as arranging their travel to avoid traffic congestion.

While residential choice literature is fascinating, there is a dearth of qualitative research giving voice to the rich lived experience of households in negotiating the complex and multifaceted choice of where to live. This research seeks to address this gap, including opening up the “black box” (Mok, 2007) of competing intra-household travel priorities and negotiations, and documenting post-move adaptive travel behaviours. Further, it seeks to contribute an experiential assessment to the

quantitative research that so often describes the dynamics of our urban places in useful but faceless numbers.

## Chapter 3: The city of Christchurch and the greater Christchurch region

### Introduction

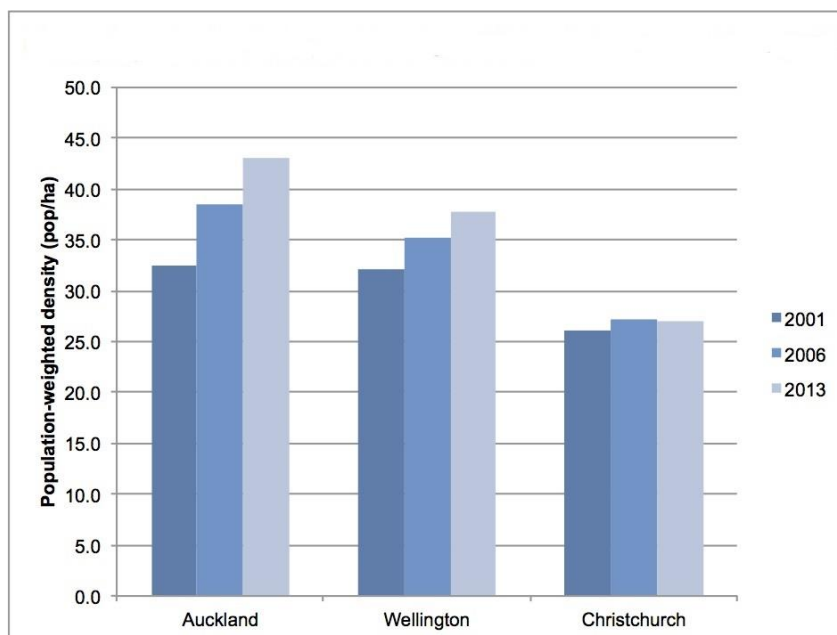
This chapter provides an overview of the specific place where the research is based—Christchurch City and the greater Christchurch region. Every city has its own distinctive history that affects its character, form and dynamic in the present day. Christchurch is subject to a particularly unique set of circumstances due to the dramatic impact of the 2010/2011 earthquake sequence and its aftermath.

Christchurch is the most populous city in the South Island, and the second largest city in New Zealand after Auckland. Situated on the alluvial plains of the Waimakariri River on the east coast of the Canterbury plains, the latest population estimates show that Christchurch City has a population of just over 362,000 (Statistics NZ, 2014b). The city has strong ties with its surrounding agricultural hinterland (Statistics NZ, 2015) and is flanked by two smaller districts, Waimakariri to the north and Selwyn to the south and west. The three districts together make up the greater Christchurch region with a total population in 2014 of 465,800 (Waimakariri has 54,400 residents and Selwyn 49,400) (Statistics NZ, 2014b). A map of the region is provided on page 54.

After British settlement in the mid-nineteenth century, Christchurch developed as a series of boroughs around a central city locus, developing over time to become a monocentric radial city (Forer, 1978). Key amenities and public and civic institutions that comprised the vibrant city centre included the University of Canterbury, Teachers' College, ChristChurch Cathedral, Canterbury Museum, several high schools, a number of theatres, Christchurch Art Gallery and the Christchurch Town Hall (Falconer, 2015). The street network in the central city was a tight grid intersected by major diagonal thoroughfares, but even in the first half of the twentieth century the suburbs of Christchurch were typified by low bungalows on generous sections of typically 0.1 hectares (Forer, 1978).

The tram network, developed from 1880 (Forer, 1978), eventually extended to Papanui to the north and Sumner to the south-east, New Brighton to the east and Cashmere and Halswell to the south

and south-west. At its peak this was the most extensive network in New Zealand (Institute of Professional Engineers New Zealand, 2014) (IPENZ). The tram system in Christchurch was less profitable than other tramways of large New Zealand cities, in part because of Christchurch's low residential density, and because the flat terrain of the city was perfect for cycling (IPENZ, 2014). The last tram was decommissioned in 1954 (Forer, 1978). Private car ownership in New Zealand had been growing quickly from the 1930s, accelerating further in the post-war years (New Zealand Transport Agency, 2015). Unlike the constrained topography of some New Zealand cities like Wellington and to some extent Auckland, Canterbury's flat plains stretching to the north, west and south of Christchurch City offer little but distance to discourage sprawl (Environment Canterbury Regional Council, 2008). Amid concerns about Christchurch's sprawl, greenbelts and designated rural zones were used since the 1950s to varying degrees of success to constrain diffuse development and conserve rural areas (Christchurch City Council, n.d.; Puentener, 1993). Christchurch's population density is significantly lower than Auckland and Wellington's, and was growing at a far slower rate even prior to the quakes as shown in Figure 3 below.



**Figure 3: Changing density in New Zealand's three largest cities, 2001 – 2013.**

(Source: Nunns, 2014)

Changes to the planning regime associated with the introduction of the Resource Management Act in 1991 allowed a renewed period of peripheral expansion beyond the former greenbelt (Christchurch City Council, n.d.) adding yet more single-family houses on extensive tracts of farmland. With the exception of some inner ring suburbs, Christchurch's residential architecture is dominated by detached single-family houses on their own sections (Environment Canterbury, 2008) typifying New Zealand's proclivity for sprawling urban settlement patterns.

Christchurch city's housing stock has a fairly old age profile, with 63 percent of houses built before 1989, and around 90 percent<sup>2</sup> built before stricter Building Code amendments requiring higher insulation values and double glazing came into force in 2007 (Ministry of Business, Innovation and Employment, Christchurch City Council, 2010; 2007). The problems with much of New Zealand's older housing stock are all too familiar, with many homes of poor quality, lacking sufficient insulation and adequate or affordable heating options, and suffering from damp and mould problems (Baker & Howden-Chapman, 2012).

## Christchurch's Central City

Even before the 2010/2011 earthquakes, the central city of Christchurch had long been considered to lack vibrancy. The first malls appeared on Christchurch's landscape in the mid-1960s, with Riccarton Mall opening its doors in 1965 as New Zealand's first fully enclosed mall, and Northlands shopping centre following close behind in 1967 (Laurenson, 2012). The central city in contrast had lost several major amenities over the latter three decades of the twentieth century. Between 1957 and 1974, the University of Canterbury, which had been located in what is now the Arts Centre—a stone's throw from Cathedral Square—progressively shifted to a new site in Ilam which was at the time on the outskirts of the city (University of Canterbury, n.d.). Around the same period, several major central city department stores closed.

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<sup>2</sup> It should be noted that this data was last updated in 2010, and due to the destruction of many houses during the earthquakes, and the rebuild programme, the current age profile is likely to be slightly younger.

The central city's struggle was exacerbated by the relaxation of development controls in the late 1990s that saw an expansion of the shopping malls that encircled the central city. The malls' proximity to residential areas, convenient access and plentiful parking captured the city's suburban population (Falconer, 2015). Mall extensions included Northlands Mall almost doubling its size in 2004 to 42,000 square metres of retail space (Kiwi Property, 2015) and Westfield Riccarton undergoing two major expansions, in 2004 and 2009 respectively (Scentre Group, 2015). The Hornby Hub mall on the western outskirts of Christchurch is currently expanding to increase its size by 30 percent to become the fourth largest mall in Christchurch (Law, 2012). Christchurch has more mall space per head than Auckland or Wellington (Jones Lang LaSalle, 2013) and the malls' continued expansion are arguably signs that Christchurch can be considered a multi-nucleated metropolitan area rather than a monocentric one. Prior to the quakes, the central city still had high employment density. The Cathedral Square census area unit had the most workers in Canterbury, and was New Zealand's third-largest employment centre (Statistics NZ, 2015)

The two decades preceding the earthquakes saw major efforts to revitalise Cathedral Square and surrounding city centre (Falconer, 2015). At the time of the earthquakes, some progress had been made, including the development of a busy central city bus exchange, and the redevelopment by private investors of several retail streets which provided bars, eateries and specialist shops with character and heritage appeal that provided a point of difference to the homogeneity of the malls (Falconer 2015).

Christchurch had a modest population residing within the 'Four Avenues' generally considered to define the central city area. This population had increased from 5,667 in 1991 to 7,653 in 2006 (Statistics NZ, 2015), an increase of 35 percent against Christchurch City's overall population increase of 20.5 percent over the same period, albeit from a small base. A Christchurch City Council Central City Revitalisation Strategy had aimed to have a residential population of 30,000 by 2026 (Christchurch City Council, 2006).

## Greater Christchurch Urban Development Strategy

With a growing realization of the negative fiscal, social and environmental impacts and concomitant economic costs associated with sprawl, Christchurch among other New Zealand cities had been taking steps to amend its planning policies, aiming to encourage and facilitate intensification of existing land, and a denser development pattern (Preval et al., 2010). Landuse began to be recognised as a central component of transport planning and demand management, and in 2005, local authorities and other key organisations in Christchurch came together in partnership to develop the Urban Development Strategy (UDS), which was to set the course for Greater Christchurch's future development. The UDS had an outlook to 2041 and its partners were: Christchurch City Council, Environment Canterbury Regional Council, Selwyn District Council, Waimakariri District Council, New Zealand Transport Agency, and Te Rūnanga o Ngāi Tahu (UDS Forum, 2007). There was extensive public consultation, with four options presented to the public for the spatial growth-management options for the future of Christchurch, namely:

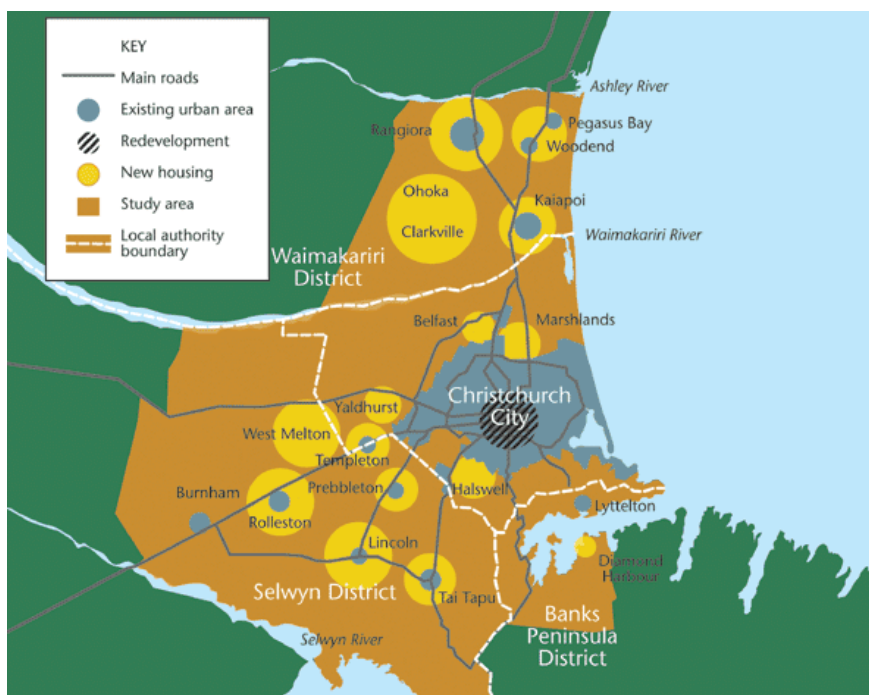
- Option A: concentrating development within Christchurch City and at larger towns in surrounding districts
- Option B: balancing development between existing built areas, with some expansion into adjacent areas
- Option C: sprawling development away from established urban areas
- Option D: no change, or 'business as usual'

The contrast between Option A and D in concentration of future development can be seen in Figure 4 and Figure 5 below, with Option D allowing for significant new housing growth in rural areas with few amenities. The public consultation process during 2005 attracted over 3250 submissions (UDS Forum, 2007) with participants expressing a strong preference for Option A, the option that called for the highest degree of urban intensification (UDS Forum, 2007). Option A called for 60 percent of growth to occur within existing urban areas (with the remaining 40 percent in greenfield areas)—compared to the actual rate of 23 percent of growth in existing urban areas between 2002 and 2006 (UDS Forum, 2007). Option A included a plan for the staged release of greenfield sites to avoid stimulating demand for rural living. Before the UDS could be implemented however, the Christchurch earthquake sequence intervened.



**Figure 4: Option A of the UDS – Concentrating development within Christchurch City and in larger towns in Waimakariri and Selwyn**

(Source: UDS Forum, 2007)



**Figure 5: Option D of the UDS—“Business as usual” residential development occurs with little thought given to access to key amenities and urban centres**

(Source: UDS Forum, 2007)

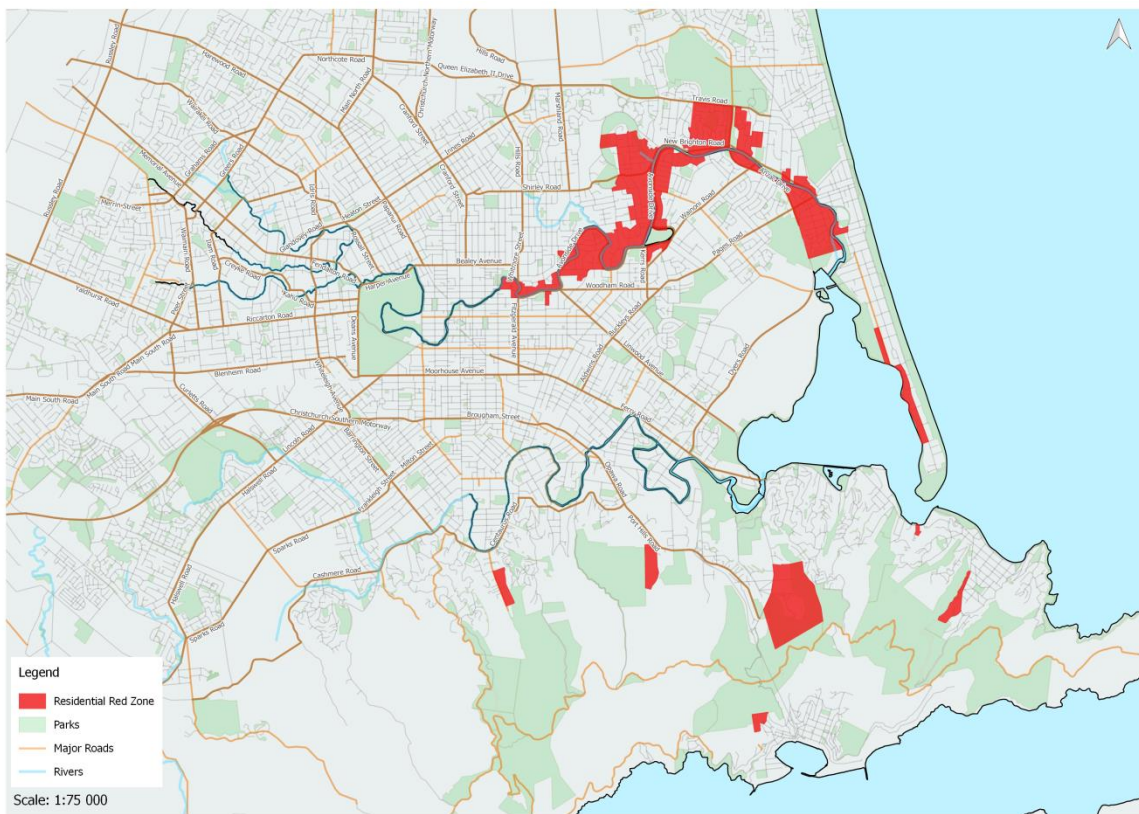


## The 2010/2011 earthquake sequence

Greater Christchurch's people and its urban landscape were changed forever by an earthquake series beginning on 4 September, 2010. This first major quake occurred at 4.35am, a magnitude 7.1 shake with its epicentre 40km west of Christchurch (GeoNet, 2010). There were no direct fatalities, but residential and commercial buildings sustained significant damage—particularly the central city's pre-1940s buildings of brick and masonry materials which lacked adequate reinforcement (Dickinson, 2013). A more devastating earthquake followed five months later on 22 February, 2011. With its epicentre closer to the city and at a shallower depth, the February quake caused the loss of 185 lives, with many thousands more injured. It caused substantial destruction and damage to buildings, including the collapse of two central city office buildings. Many deaths and most of the damage were the result of unreinforced masonry, poorly constructed buildings and buildings that did not meet current earthquake requirements. Horizontal infrastructure was also severely damaged, with 124km of water mains and 300 kilometres of sewer lines needing repair, as well as 50,000 road defects (Falconer, 2015). Between the initial September 2010 quake and June 2013, greater Christchurch experienced almost 13,000 further earthquakes (GeoNet, 2011) causing ongoing stress and psychological trauma to its people, as well as further minor damage to the built environment.

## The earthquakes' impact on residential property

The severe shaking of the February earthquake caused liquefaction and lateral spreading over large parts of the city, especially around the Avon/ Ōtākaro and Heathcote/ Ōpāwaho rivers in the east of the city. The lateral spreading and liquefaction caused much of the estimated \$14 billion worth of damage to residential building, and an estimated 91 percent of greater Christchurch's 190,000 dwellings suffered at least minor damage (Canterbury Earthquake Recovery Authority, 2013) (CERA). Swathes of land in the east of the city were designated as 'red zone land' meaning that "land has been so badly damaged by the earthquakes it is unlikely it can be rebuilt on for a prolonged period" (CERA, n.d.). Similarly, some areas of the hill suburbs to the south-east of the city were red zoned due to rockfall risk (CERA, 2015), though these represented a small proportion of the total red zoned



**Figure 6: Residential red zone in eastern Christchurch and Port Hill areas**

(Bespoke map kindly provided by Christchurch City Council, 2015)

properties. Property owners in the red zone were bought out by the Crown. The total number of properties in the residential red zone is 8063, with the majority of these in the east of the city (CERA 2014; CERA 2015). A further 9,100 properties were rendered uninhabitable by quake damage and required major repair or rebuild (Ministry of Business, Innovation and Employment, 2013). The areas of the city which were red zoned are shown in Figure 6 below.

The loss of thousands of homes, along with the thousands more that required extensive repairs requiring families to shift into short term rentals created high pressure on the Christchurch housing market. Average rent prices rose 31 percent between August 2010 and February 2013 (MBIE, 2013). The housing pressures from households needing to relocate led to highly accelerated greenfield development in areas already earmarked for residential expansion, including Halswell, Rolleston and Rangiora, (UDS Forum, n.d.).

Many of the residents of the red zone, particularly those in the eastern suburbs, relocated towards more stable the northern and south-western outskirts of Christchurch. There was huge growth in new subdivisions in the Selwyn district to the south-west, and the Waimakariri district to the north of the city. Residential subdivisions already in the planning stages was fast-tracked (McDonald, 2013), and developers moved quickly to get new subdivisions underway.

This population shift is borne out by Census statistics. The Census in 2011 was delayed due to the earthquakes which is why the gap between censuses is seven years instead of the usual five years. Census data shows that while Christchurch City's population fell by 2.0 percent between 2006 and 2013, the population of Greater Christchurch increased by 2.6 percent. Population change between 2006 and 2013 is shown in Figure 7 below. Waimakariri experienced a 16.7 percent population increase over this time, with growth in Rangiora particularly high, while Selwyn's population grew by 32.6 percent, with growth concentrated in Rolleston. The high population growth of Selwyn includes a particularly marked increase in the number of families with children, with an increase of almost 30 percent in the number of under 15-year olds in the area between 2006 and 2013 (Statistics NZ, 2014a). Rangiora also saw significant increases in the number of resident young people (0 to 15 years old) (Statistics NZ, 2014a). At the time of the 2013 Census, people who had moved from Christchurch City to Rolleston and to Rangiora within the previous two years made up 14.9 and 10.3 percent of the two towns' total population respectively (Statistics NZ, 2014a).

Territorial area	Residential population, all ages		
	2006	2013	% change
Christchurch city	348,456	341,469	-2.00%
Selwyn district	33,642	44,595	32.60%
Waimakariri district	42,834	49,989	16.70%

**Figure 7: Population changes between 2006 and 2013 Census period**

(Source: Statistics NZ, 2014a)

## The earthquakes' impact on employment in the central city

Due to the extensive damage in the central city, and the danger posed by unstable buildings and the subsequent demolition programme, an Inner City Red Zone was created in the wake of the February quake. The public exclusion cordon initially covered a 92 hectare area (Statistics NZ, n.d.) which was incrementally reduced in area over the following two years. At time of writing, the demolition phase is almost complete with over 1,200 buildings having been demolished (around half of all buildings in the original area of the central city red zone) (Falconer, 2015). The residential population of the central city dropped by 36 percent between 2006 and 2013, from 7,653 to 4,905 residents (Statistics NZ, 2015).

In the period following the earthquake, employment became significantly more dispersed in Christchurch (Statistics NZ, 2015), with a general shift towards the south and west of the central city. The city centre lost 63.6 percent of its workers between 2006 and 2013, falling from 39,213 to 19,419 people (Statistics NZ, 2015). Many businesses formerly located within the central city congregated around Addington to the southwest of the central city, which gained 6000 workers over the period (Gates, 2014), as well as to business parks that expanded rapidly near the airport in the western outskirts and similarly gained around 6000 workers (Gates, 2014). There were also large increases in employment in Selwyn and Waimakariri over this period, of 43.0 and 30.3 percent respectively between the 2006 and 2013 censuses (Statistics NZ, 2014a).

The rebuild of the central city has been slow, notwithstanding the opening of some notable attractors such as the Re:START Container Mall, the Isaac Theatre Royal and New Regent Street with its range of shopping and hospitality outlets. 2016 is expected to be a turning point for the inner city, with over 1,100 government employees and 450 regional council staff, as well as private sector employees all relocating to the city in newly-built premises (Environment Canterbury, 2014b; NZ Government, 2015)

## Transport impacts of the earthquakes, and motorway investment

Christchurch's roading system suffered significant damage in the earthquakes, and even where road surfaces were reasonably unscathed, the significant damage to the horizontal infrastructure such as

sewerage and stormwater pipes running underneath the roads necessitated an extensive programme of repairs, causing intense disruption to traffic movement through the city. Delays are exacerbated by the fact that the relocation of residential population, and retail, services and amenities has changed travel demand patterns for which the current roading system was not designed (Environment Canterbury, 2015).

The impacts of the earthquakes also severely undermined the public transport system in Christchurch leading to a sharp drop in patronage, and a rise in private vehicle travel (Statistics NZ, 2015). In aggregate, these dynamics have led to longer vehicle travel times and diminished travel time reliability. The congestion index for Christchurch City increased by 40 percent between 2009 and 2013 (Environment Canterbury, 2015). Over this same period, the number of commuters coming into Christchurch from the Rolleston increased by 88.7 percent, rising from 1,650 to 3,144, and those coming from Rangiora increased from 1,884 to 2,727 daily (Statistics NZ, 2015). Overall, the number of commuter vehicles entering Christchurch City daily from the Selwyn and Waimakariri districts increased from 17,500 to 23,000 (Environment Canterbury, 2015).

There has been a notable recent increase in the number of households with access to a company vehicle. Between 2006 and 2013, the number of workers driving a company vehicle to work increased by 40.2 percent in Waimakariri, and 63.0 percent in Selwyn (Statistics NZ, 2015). Overall, 20 percent of workers in Selwyn and Waimakariri drove a company car to work on Census day 2013 (Statistics NZ, 2015).

Another major element in Christchurch's transport infrastructure development is a \$900 million investment in motorways currently underway as part of the Government's Roads of National Significance programme. This substantial investment programme preceded the quakes and is focused on increasing the efficiency of freight movement, particularly relating to Lyttelton Port and Christchurch International Airport. Despite its *raison d'être* being enhancing freight efficiency, the project also eases access to Christchurch city from Rolleston and Rangiora, and enhances access for parts of Halswell to key activity centres like Hornby. Given the phenomenon of induced traffic discussed in the preceding chapter, particularly with regards to its medium- to long-term effect of facilitating development in areas served by the added capacity, these roading developments will

likely increase demand for residential property in peripheral areas of greater Christchurch whose ease of access they facilitate.

## Transport and housing patterns in Christchurch

In general, house prices decrease with distance from the inner city (Mattingly & Morrissey, 2014).

This trend is weaker in Christchurch—that is, there is a shallower downward price gradient as distance from the central city increases than in other New Zealand cities (Nunns, 2014). It should be noted that Nunns’ analysis did not account for housing quality, which is likely to be a significant factor given the concentration of new houses in more recent peripheral developments. Christchurch has for many years had the highest car ownership rate in New Zealand which in turn has one of the highest ownership rates in the world (Ministry of Transport, 2008). Unlike other cities where car ownership tends to increase with distance from the inner city, Christchurch’s car ownership rates do not rise noticeably as distance increases (Nunns, 2014). This is potentially related to the historically high car ownership rate which may represent a sort of saturation point. Nunns’ analysis found that the combined cost of housing and commuting as a proportion of household median income in the Canterbury region increased as distance from Christchurch’s city centre increases (Nunns, 2014). The analysis did not take into account access to company vehicles. Because the financial savings to a household represented by access to company vehicle are not captured in household income figures used in Nunns’ analysis, and given that one-fifth of workers in Selwyn and Waimakariri have access to a work vehicle (Statistics NZ, 2015), this is likely to affect the accuracy of the findings.

Nevertheless, taking Nunns’ results (2014) as an indicative assessment, 20 percent of Canterbury census area units have an average combined housing, car ownership and commute cost of over 40 percent of their median income. In Rangiora, the expected housing and transport costs are in the range of 40 to 50 percent of median household income (Nunns, 2014).

## The Land Use Recovery Plan

Finalised in 2013, the Land Use Recovery Plan (LURP) replaced the pre-quake Urban Development Strategy, with a much weaker focus on infill development, and most importantly, an immediate bulk release of greenfield land for development that exceeded the amount of land that the UDS would have released over the next 28 years (CERA, 2013; UDS Forum, 2007). Rather than concentrating new development in existing urban areas, the LURP essentially exacerbates the trend for sprawling development. Under the LURP, up to 30,600 greenfield sections are expected to come onto the market by 2016 (Young, 2013). This represents more greenfield land than the UDS had proposed to release in the entire period to 2041, and paves the way for far more dispersed greenfield development in the Greater Christchurch region over the coming decades. Figure 5 representing Option D, “business as usual” in the UDS is provided on page 41 in contrast to the UDS’ preferred Option A. Under the LURP, development trajectories in greater Christchurch now closely resemble those of Option D.

## Conclusion

Under the Land Use Recovery Plan, greater Christchurch is undergoing peripheral greenfield development at an accelerated rate. This study’s focus is not on the external environmental, fiscal or broader economic costs of sprawl but rather is interested in the attraction to, and experience of living in these fast-growing areas. The following chapter outlines the research approaches used in this thesis.

## Chapter 4: Methodology and methods

### Introduction

This chapter outlines the methodological approach and the specific methods used in this research. As noted earlier, my research explored issues of residential choice, and the extent to which households took transport-related implications of location into account when deciding where to live. It also examined participants' subjective experience of travel, and the intrinsic value of time spent in transit. The research was conducted in the particular situation of post-quake Christchurch, but was motivated by questions that are applicable far more broadly.

Initially I intended to use a mixed-methods approach to explore the issues raised in the range of literatures reviewed in Chapter 2, namely: what key attributes did people take into consideration when buying a property; to what extent did they take transport-related costs of their property into account; do they experience time spent in travel purely as cost? The original research proposed using travel diaries to capture a household's travel habits over the course of a week. The aim was to learn whether and to what extent household location affected travel habits, distance travelled and amount of time spent in transit. Secondly, a questionnaire was designed to gain insight into the relative influence of property and location attributes on participants' residential choice, and whether these differed between the four study areas. My intention was to supplement these quantitative research tools with in-depth interviews, so as to obtain extra insight into participants' travel habits and subjective experience.

This approach underwent a substantial evolution during the course of the data-gathering process. The initial aim of using a mixed-methods approach involving travel diaries, questionnaires and semi-structured interviews was to seek validity and corroborate findings between the methods in a process of triangulation (Winchester & Rofo, 2010). It became apparent however that by far the most rich and useful insights were gained through the in-depth, semi-structured interviews. A number of problems with regards to data gathering and interpretation of the data generated by the travel diary and questionnaire also came to light. This meant that these tools were used in a much



more limited way than originally intended. This evolution of the research approach is explained in more detail below.

This chapter begins by outlining my positionality as a researcher and the need for self-reflexivity. From there I describe the selection of the four research areas in greater Christchurch, and provide basic contextual information on each site. The participant recruitment processes used are described, and some background data on participant households is given. From there, I explore in more detail the design, sampling, delivery and analysis of interviews, questionnaires and travel diaries, and the evolution of the research approach. This includes a discussion of how the in-depth interviews yielded insights and unexpected findings that warranted their primacy as a research tool in this thesis.

## Positionality and disclosure

My positionality as a researcher was something I was very aware of throughout the research process, and there was one excerpt from Richards and Morse (2007, p. 127) that stayed with me throughout the work:

*Whether your experience will affect the research is not the question—it will. For all researchers, the big question is how to place that experience. How do you monitor and account for the ways your values, beliefs, culture and even physical limitations affect the process and quality of data?*

My passion for the social, economic, and physical wellbeing of people, and the environmental sustainability of the urban places we collectively create led me to this topic. While some qualitative research may be embarked upon with little knowledge about the topic (Richards & Morse, 2007), I had broad knowledge on transport and urban policy, having done a lot of previous study and thinking on the subject, and having worked in the public transport team at Environment Canterbury Regional Council. However, much of this knowledge was from a detached academic and policy perspective, and I was keenly interested to understand the drivers of transport decisions, behaviour, and subjective experience from residents' points of view rather than that of a policy analyst or 'expert'. This interest shaped the research direction, and meant it was crucial for me to approach the research with an open mind, attentive to the personal experiences and situations of participants,

and consciously putting aside what I thought I knew through my previous experience in the transport sector, to simply listen and learn.

I tried to be consistently aware that my positionality could affect the research, reflecting on the fact that my lifestyle choices—for example the fact that my most frequent form of transport is a bicycle, and that I share the ownership of a car with my friend—are unusual in the dominant culture that surrounds me. I try to make lifestyle choices, including with regards to transportation, that minimise my environmental impact. I reminded myself that my choices to travel primarily by bicycle are made within a different life stage to most of the participants—one of few time constraints and without children. Furthermore, I have a very rational approach to risk, and where many are understandably fearful of cycling and the possibility of injury or death, I take into account the statistics that do not show cycling as unacceptably dangerous. Reflecting on these points helped me minimise negative attitudes I hold towards cars from affecting the research.

As advised by Valentine (1997, p. 113) I spent time reflecting on who I am and how my identity would shape interactions with participants. While door-knocking in the study areas, with their new houses and tidy lawns, I was very aware that my position as a white, middle-class woman may have made the cold-calling exercise easier than had I been of a very different socio-economic or cultural background to the majority of homes I was approaching. I strove to be as open-minded as possible, and also tried to avoid participants having the opportunity to form an impression of my transport choices so as not to potentially colour their interview answers by bending them to social desirability (Beere, 2014). For example, whether I arrived at interviews by bike or in my slightly beaten-up station wagon, I tried to park around the corner. I was mindful to minimise as much as possible the bleeding of any personal beliefs into how I conducted interviews. I was attentive to my tone of voice and sought to keep it as measured and neutral as possible, especially in the rare events that participants expressed opinions or described behaviours which I found disturbing from an environmental point of view. I sought to frame questions in as value-neutral a manner as possible.

The research helped me become more aware of how much I enjoy certain aspects of driving, and this helped me to relate to the experiences of many participants. As England (1994, p. 86, emphasis in original) notes: “ the research, researched *and* researcher might be transformed by the research

experience”. Indeed, personal reflection during the research prompted me to let go of some “favourite ideas” (Richards & Morse, 2007, p. 15). Because previous research on transport has made me aware of the high environmental costs of driving, I have an instinctively negative attitude to cars and driving, but listening to participants talk about their experience of driving and time in the car made me realise how much I actually enjoy this too. Like Bull’s (2004) participants, my trips in the car are often the only occasion during a week that I listen to music, and reading Jain and Lyons’ (2008) study about the “gift” of travel time made me realise the value of my time in the car as a space for reflection and simply being alone. Conversely, on speaking with interview participants, I became more aware of my negative reactions to driving in heavy traffic and experiencing unexpected detours. These reflections all helped generate empathy and an understanding of participants’ experiences, and self-awareness.

## Research approach

This research sought to understand the key factors that motivated people to move to some of the fastest growing residential areas of Christchurch, and specifically to apprehend the extent to which participants factored in the transport implications of their residential location before purchase. It explored their general attitudes to travel and the lived experience of their former and current travel arrangements, and how the subjective experience of transport may influence residential location choice. Referring to Richards and Morse (2007), this research began with an area of interest, rather than a list of specific research questions. I sought to learn through the data, consciously remaining flexible with regard to the direction the data collected might take the research and lines of inquiry.

This study was a cross-sectional multi-case study—that is, it was conducted across several study sites over one block of time. These four sites and the rationale for their selection are described towards the end of this chapter. This approach is suited to examining existing explanatory concepts—in this case the largely quantitative literature around residential choice, urban form and transport, and transport behaviours—and may either corroborate or falsify these existing concepts (Baxter, 2010).

Multi case studies may also develop new explanatory concepts (Baxter, 2010).

While qualitative research is not concerned with statistical significance or reliability, it does seek to produce findings that hold relevance and generate insights in other contexts (Baxter, 2010). In this research, while certain findings are directly related to the circumstances of the Christchurch earthquake, many of the experiences, perspectives and motivations of participants are applicable to other contexts. For example, while the traffic congestion in Christchurch has been exacerbated by earthquake-damaged roads and repairs—requiring detours, road closures and so forth—the findings with regards to experience of driving in congested urban roads are relevant to congested urban contexts unaffected by earthquakes.

## Selection of research sites

The recent major residential shift in Christchurch, and the accelerated development of many new residential areas enabled the recruitment of many households that had recently moved. Such households were more easily able to recall their experience of house hunting and the role that transport had played in their decisions. They were also able to reflect on transport experiences living in different areas of the city, or in their previous city of residence. Because I was interested in their motivations for moving to a new greenfield subdivision, the study sites needed to be located in such areas. Initial scoping of potential sites included reading media coverage of recently developed (and in most cases still developing) residential areas in the greater Christchurch area.

Three fast-growing residential subdivision areas on the western axis of Christchurch, with similar housing types but at different distances from the central city, were chosen to provide comparative elements for location and travel implications. Development of these areas was greatly accelerated in the aftermath of the earthquakes due to the extensive housing loss sustained, with demand for land particularly high in the west given its stability in the face of seismic events. Distance was measured from Cathedral Square as a proxy for the central city, as the Square lies approximately at the centre of the Four Avenues which are widely understood to define Christchurch's central city both in common parlance and by Statistics NZ. While aware that Christchurch is in many respects a multinucleated city, as outlined previously, the rationale of choosing areas at varying distances from central Christchurch was based on a working assumption that the central city still holds some relevance for Christchurch residents. The three areas initially chosen were:

- Linden Grove, a greenfield development on the former grounds of Hillmorton Hospital situated approximately 5 kilometres from Cathedral Square;
- Halswell, an area on the fringe of Christchurch City around 10km from Cathedral Square;
- Rolleston, which is in the Selwyn District, located around 25 kilometres from Cathedral Square.

The four study areas' relative locations and key road access corridors are shown in Figure 8 below. Rangiora, which is also experiencing high residential growth rates, was added later in the research. This fourth study area was added because the significant negative effect of traffic congestion on driving experience and enjoyment emerged as a strong theme during earlier interviews. Rangiora is a comparable distance from the central city to Rolleston (28 kilometres and 25 kilometres distance from Cathedral Square respectively), but traffic from Rangiora into the city at peak commute times is significantly more congested. In contrast to Rolleston, from which there are several possible routes into the city, Rangiora's access to Christchurch is restricted to one main thoroughfare relying on the single Waimakariri bridge (the nearest alternative bridge more than triples the driving distance into the city). The addition of Rangiora as a research site therefore allowed further exploration of the interplay between travel *distance* and travel *time*, and people's subjective experience of travel in different traffic and road conditions, and how this impacts on participants' commute in particular. The scope of a qualitative research project is rarely set in stone at the beginning, but rather is data-driven, with changes to the scope common as the researcher's understanding of the situation develops (Richards & Morse, 2007; Dunn, 2010). Background information on each of the four study sites is provided below.



**Figure 8: Map of greater Christchurch showing the four study sites and major road corridors.**

## Linden Grove

Linden Grove lies south-west of Christchurch's Hagley Park on 22 hectares of land originally part of the former Sunnyside Hospital grounds (Alan Grove, Development Manager, Ngāi Tahu Property, personal communication, 23 June, 2015). The subdivision is 5 kilometres from Cathedral Square.

Ngāi Tahu Property initiated the residential development around 2007, and with around 200 sections (Alan Grove, Development Manager, Ngāi Tahu Property, personal communication, 23 June, 2015). It is substantially smaller than the other study areas, and unusual in its existence as a greenfield subdivision so close to the central city rather than on the urban periphery. A major point of difference of the subdivision is the established trees which have been retained and are now protected, which include mature oaks, beech, limes, gums, elm and sycamore. Linden Grove, unlike many other greenfield subdivisions, has a comparatively large number of medium-density, multi-storey row houses amidst the majority of detached single family homes.

Linden Grove is around 2 kilometres from Addington Village's hub of cafes, restaurants, a bank, fast food outlets, petrol stations, a small supermarket and other stores and services on Lincoln Road. It is also around 3 kilometres from Tower Junction, a big box retail centre, and less than 3 kilometres from Christchurch's largest shopping mall, Westfield Riccarton. Christchurch Hospital is 4 kilometres away, and the temporary sports and event stadium built to replace Christchurch's earthquake damaged one is 1.5 kilometres down the road from Linden Grove.

## Halswell

The area of Halswell also lies south-west of Hagley Park, approximately 10 kilometres from Cathedral Square. Some older residential neighbourhoods of Halswell date back to the 1950s and the area saw a surge in low-density residential development from the mid-1990s (Christchurch City Council, 2009). The area was earmarked for further growth in the 2009 South West Area Plan, with residential developments of the area expedited after the 2010/2011 earthquake events.



Key amenities in the area include a sizable New World supermarket, Halswell Aquatic Centre, Halswell Library, medical centre, post shop, early learning centre, the 60 hectare outdoor recreational area of Halswell Quarry Park with walking tracks, mountain bike tracks and dog and horse exercise areas, and Halswell Domain. A major community facility is currently under construction and expected to open in November 2015. This will include a new larger library, café, indoor play area and large multi-purpose spaces for events and meetings (Cairns, 2014). Primary schools zoned for Halswell include Aidanfield Christian School, and Oakland Primary and Halswell Primary. Halswell's nearest high schools are Hornby High School and Hillmorton High School, with the southern tip of Halswell also in the Lincoln High School zone (Ministry of Education, 2015). The nearest major shopping malls are Westfield, approximately 7 kilometres away, and Hornby Hub around 5 kilometres away accessed via the recently expanded motorway mentioned in the previous chapter.

## Rolleston

The town of Rolleston is situated in the Selwyn District, around 25 kilometres south-west of Cathedral Square. At the time of the 2013 census Rolleston had a population of 9,555 inhabitants (Selwyn District Council, 2015), and was the fastest-growing territorial authority area in New Zealand with a 32 percent growth rate between the 2006 and 2013 censuses (Statistics NZ, 2013).

Rolleston currently has three primary schools, with another primary school projected to open in February 2016, and its first high school, Rolleston College projected to open in February 2017 (Sherwood, 2015). Rolleston is still widely considered a satellite town to Christchurch and relies on major amenities and services in Christchurch City, though with its fast residential growth and concomitant amenity and retail expansion mean Rolleston is an increasingly independent community. Key amenities include a sizable Countdown and a smaller New World supermarket, The Warehouse, medical clinics, a petrol station, community centre, library, Selwyn Aquatic Centre which was opened in 2013, and various other smaller shops, services, cafes and restaurants.

Rolleston is connected to Christchurch via the Southern Motorway (State Highway 1), as well as several back-road connections. The New Zealand Transport Agency (NZTA) has plans to expand State



Highway 1 between Rolleston and Addington into a four-lane expressway. The four-laning has been completed between Addington and Hornby, with the remainder of the work projected to begin in 2016 (NZTA, 2014).

## Rangiora

Situated north of Christchurch in the Waimakariri District, Rangiora is 3 kilometres further away from Cathedral Square than Rolleston. Unlike the route to Rolleston, which experiences only minor delays due to peak time traffic flows, the traffic congestion on State Highway 1 between Christchurch and Rangiora during the morning and afternoon peaks is widely known to be severe (Environment Canterbury Regional Council, 2014a). Regular media articles highlight the long delays faced by commuters from Rangiora (see for example Mathewson, 2015; Robinson 2014, 2015). The number of Rangiora residents commuting into Christchurch City daily increased 45% between 2006 and 2013, from 1,884 to 2,727 (Statistics NZ, 2015).

Rangiora is the main town centre for Waimakariri District, which was the third fastest growing territorial authority area in New Zealand at the 2013 Census, experiencing a 16.7 percent growth rate between 2006 and 2013 censuses (Statistics NZ, 2013). It currently has six primary schools and a high school. Key local amenities include a New World and Countdown supermarket, Mitre 10 Mega hardware store, The Warehouse, medical clinics, a library, Dudley Park Aquatic Centre and a large range of smaller shops, services, restaurants, and cafes in its high street. A Farmers department store is currently under construction to replace the one destroyed in the earthquakes.

## Sampling and recruiting participants

The research recruited families with children living at home. These households are a target demographic for residential subdivisions. While much of the research literature on household transport focuses on the regular work commute, the research sought an understanding of the comprehensive range of household travel and trip purposes, and families with children provided ample scope to probe complex intra-households transport needs and trade-offs. It is prudent to target the research at one dominant type of household structure given that household structure has

a significant effect on travel behaviour, especially the presence of children in a household (Dieleman et al., 2002).

Overall, 28 households were interviewed, with a total of 34 participants across the four research sites. While the small numbers and particular household type mean the research does not claim to be representative of the population of these areas as a whole, the focus was on understanding how residents experience and make sense of their own lives rather than seeking representative narratives of a population as a whole (Valentine, 2001, p. 111). During the final few interviews however very few ideas and experiences that shed light on the research objectives were shared that had not already been extensively canvassed during other interviews, indicating a saturation point (Glaser & Strauss, 1967 as cited in Mason, 2010, p. 1). While having raised many different perspectives, the qualitative data gathered had also towards the end revealed areas of general consensus, both within and across study areas (Dunn, 2010). The low number of interviews needed to reach indications of saturation are thought in large part to be attributable to the cultural and socio-demographic homogeneity of the participants (Ritchie, Lewis, & Elam, 2003).

Initially the recruitment approach focused on word of mouth and by contacting groups like residents' associations and churches who included in their newsletters or on their Facebook pages an invitation to participate in the research. These approaches had a very low success rate, so the more direct approach of door-knocking target neighbourhoods was used. Door-knocking also ensured that a broader range of people participated in the research, thus reducing the risk self-selection of enthusiastic people heavily involved in community organisations who may bias the sample (Maxwell, 2001). Sunday afternoons were chosen as a time that people with children were likely to be home (often Saturday mornings are favoured for door-knocking, but given this is the time that many children's team sports take place, Sunday was chosen). This was a far more effective recruitment method, with most families who fitted the criteria happy to take part. This strategy's other strength was in avoiding sampling bias by excessive reliance on snowballing, which may result in skewing the sample towards a certain cultural sub-group, as participants were more likely to refer people of a similar demographic or culture as themselves (Babbie, 2007). At the interview stage a basic snowball method was used by asking participants whether they knew anyone else who lived in

the area who might be happy to take part. The number of households recruited through each of the methods is shown in Table 4 below. In Halswell, snowballing was so successful that the quota was exceeded, with nine households interviewed.

Only five households with children were recruited in the study area of Linden Grove. A very high proportion of the households door-knocked there had no children, and there was generally a lower success rate of people being home on the three occasions that door-knocking was undertaken (the other three study areas required only two rounds of door-knocking to fill the quota).

Generally, women were more willing to participate than their male partners. This was thought to be partly due to the fact that in more than half of participant households, the male partner was in full-time work and the female partner was either a full-time parent or was in part-time or casual or flexible employment, therefore affording women greater flexibility to participate in interviews. Of the 34 participants interviewed from 28 households, 26 were women and 8 were men.

**Table 4: Participants engaged via different recruitment methods**

Recruitment approach	Number of households recruited
Door knocking	12
Snowballing through researcher's acquaintances	8
Snowballing through participants	6
Post on Rolleston Residents' Association Facebook page	1
Invitation in church newsletter	1

## Household structure and demographics of respondents

The participant sample was dominated by families who had pre-school and primary school age children. Only two households had high school age children, and three had children living at home who were over 18.

Many families had very traditional gender role divisions, with seven families having full time mothers. Fourteen mothers worked or studied part-time and had primary responsibility for childcare—one was a raising her children single-handedly, and the remaining six had partners who

worked full time. Six households had two full-time earners, and one other woman raising her children alone also worked full time.

By recruiting households that live in subdivisions, participants were self-selected. The research sought not to be representative of any wider population, but rather sought understanding and insight into the lived experience of residents of fast-growing neighbourhoods. The sample overall had a higher income than the income profile of their location, particularly Linden Grove. The households interviewed yielded limited data on travel modes apart from the private vehicle, making the research heavily focused on driving as the dominant mode of transport.

**Table 5: Total household income in study areas, greater Christchurch & New Zealand**

Household income brackets (Census 2013)	\$20,000 or less	\$20,001- \$30,000	\$30,001- \$50,000	\$50,001- \$70,000	\$70,001- \$100,000	\$100,001 or more
Linden Grove	4.3%	0.0%	8.7%	13.0%	21.7%	60.9%
Halswell	5.1%	7.6%	14.6%	13.3%	21.9%	37.8%
Rolleston	2.6%	4.6%	10.3%	12.0%	25.7%	45.2%
Rangiora	9.1%	12.5%	19.7%	16.3%	18.2%	24.1%
Greater Christchurch	9.6%	10.3%	17%	14.8%	19.5%	28.7%
New Zealand	11.1%	11%	17.7%	14.6%	18%	27.6%

Source: Statistics NZ, 2015

**Table 6: Total household income of participant households by study area**

Participant household income brackets	\$20,000 or less	\$20,001- \$30,000	\$30,001- \$50,000	\$50,001- \$70,000	\$70,001- \$100,000	\$100,001 or more
Linden Grove	0	0	0	0	0	100%
Halswell	0	0	11.1%	11.1%	11.1%	66.7%
Rolleston	0	0	0	28.6%	14.3%	57.1%
Rangiora	0	0	14.3%	14.3%	42.9%	28.6%

## Research approach and data collection

The literature review in Chapter 2 summarised firstly research on residential choice, highlighting property and location attributes commonly taken into consideration by households. It went on to consider a body of research that explores the relationship between land use characteristics and transport. This has found, for example, that households living in more peripheral areas are more car reliant, but also that self-selection by households who move into neighbourhoods that facilitate existing preferences for certain travel behaviours and lifestyles plays a role in this relationship. A third strand of the more recent literature that was raised is the research looking at combined housing and transport affordability, and the possibility that households are unconscious of the true costs of vehicle ownership and running when making residential locational decisions. Finally, social science research on the subjective (and often very positive) experience of people's time in the car was reviewed.

Originally the intention was to use a mixed methods approach to test the extent to which findings in the literature held true in the Christchurch context. The research tools employed were a travel diary, a questionnaire and in-depth interviews. These are considered in turn now, including a reflection on their value and weaknesses in this research and why the way they were used changed over the course of the study. As a brief overview of the sequence of participation from the point of view of the participants, travel diaries were provided to participants at time of initial contact, and I followed up a week later to find a mutually suitable time to meet for an interview. The questionnaire was completed in my presence at the beginning of the interview and generally took people less than ten minutes to complete. Interviews took place at a location most convenient to the interviewee. For many participants, particularly parents with primary childcare responsibilities, this was most often at their home, where 24 of the interviews were conducted. A further two interviews took place at people's place of work, and the remaining three at a café.

### Travel diaries

At the time of door-knocking or other initial recruitment approach, participants were asked to fill out a travel diary for up to seven consecutive days, detailing each trip they took (its purpose, the

destination address, the time it took to get there, the form of transport used and whether anyone went with them). A copy of the travel diary is included as Appendix A. Participants were given the option of filling out fewer than seven days if it became too burdensome. Two different layouts were piloted on four students who did not study geography. One layout was the clear preference among all of them, and a number of suggested changes to simplify the diary were implemented.

The original purpose of the travel diaries was to test the extent to which findings from other transport research held true—specifically, do households living at further distances from central Christchurch travel further and/or spend more time in transit than those living in more central locations? The data collected was heavily skewed by the fact that those who travelled more were less likely to complete a travel diary, given the relative burden of compliance. Furthermore, despite piloting and efforts to make the diary as user-friendly as possible, several participants filled them in incorrectly or incompletely, rendering their data unusable. Due to these limitations, the data in the diaries was not used in the research analysis.

From one perspective, the exclusion of the travel data from the diaries could be considered a loss of structured data, but the quality of the data gathered was not considered sufficient to warrant its inclusion. However, travel diaries which include total household travel and thereby move beyond the current bias in the literature towards study of the work commute could be used to good effect in future research. This could be conducted through the development or use of a smartphone application or other technology to automatically gather data, thus reducing the burden of data recording for participants and mitigating the problem of participants with complex journeys self-selecting out of the sample. Furthermore, the use of such technologies would facilitate a bigger and more representative sample size.

The second purpose of the travel diary was to get participants thinking a little about their travel before the interview took place. The completed travel diaries were used during interviews to prompt questions that would otherwise not have occurred to me, and viewing up to a week's worth of household activities and destinations allowed me to gain a more in-depth understanding of participants' typical week and travel rhythms. Several participants shared reflections on their weekly travel, with some commenting for example that they had been shocked how often they used the car,

while another expressed surprise after timing her work commute that it only took 10 minutes or less.

## Questionnaires

Participants were asked to complete a questionnaire in my presence, directly prior to the interview. The questionnaire was piloted on three students who provided feedback as to how it could be improved. Suggestions were received to improve the logical flow of the survey and these amendments were made. A copy of the questionnaire can be found in Appendix B.

The first purpose of the questionnaire was to gain an insight into residential location choice in order to see to what extent findings in the international literature were mirrored in the New Zealand context, and whether the ranking of amenities and attractors differed between the four study areas. The respondents were asked to rate the importance of a variety of factors and considerations when choosing their current place of residence. It also asked questions about people's subjective experience of travel and to what extent they perceive that their time in the car has intrinsic value. The intention was to understand whether these travel attitudes differed across research sites and potentially had a bearing on residential location choice.

The questionnaire responses were used during the interview to probe deeper into attitudes, behaviour, choices and experiences. During these probes it was discovered that many of the questions were interpreted by participants in very different ways to what had been intended, making some of the questionnaire results questionable at best and misleading at worst. On reflection, this was a shortcoming in my questionnaire piloting process, which should have included in-depth discussion with pilot participants about how exactly they had interpreted the questions. This learning will be applied in any future research I undertake.

The questionnaires therefore served a more limited purpose than originally intended. The value they added was threefold. Firstly, the information on households and their occupants, and basic data such as number of cars in the household was useful as contextual information during the analysis of the interviews. Secondly, the questionnaire responses used as probes for interview questions yielded some valuable discussion. Thirdly, the extent to which interpretation of some of the

questions differed from the intention served to highlight the potential for questionnaire results to be misleading, and confirms the value of in-depth qualitative data in providing a rich dataset which quantitative approaches cannot deliver (Winchester & Rofo, 2010).

## Interviews

In-depth, semi-structured interviews allowed a diverse range of meaning, experiences and opinions to be collected, lending a depth of understanding unable to be obtained via other data collection methods (Dunn, 2010). These rich exchanges provided an insight into decision-making processes in the way participants experienced it, and through their own interpretations of their lives, which is a particular strength of qualitative methods (Richards & Morse, 2007; Valentine, 1997). Furthermore, the interviews allowed me to reflect back to participants what I had understood them to mean in order to verify their opinion (Dunn, 2010). Finally, a key strength of interviews as a research technique is in allowing viewpoints and issues not previously considered by the researcher to be raised (Winchester & Rofo, 2010). For example, interviewees raised the significance of access to company cars in influencing residential location consideration and day-to-day transport decisions, which was something I had not previously recognised.

An interview guide was developed which evolved over the course of the research to include new questions and lines of inquiry based on unanticipated themes emerging from previous interviews as outlined by Dunn (2010). Conversely, other directions of inquiry that were not easily understood by previous participants or were not found to raise relevant discussion were abandoned. As Richards and Morse (2007) argue, the constant evolution of interview guides is to be expected as researchers' thinking develops and they learn inductively from the data. The interview guide can be found in Appendix C.

While it is generally considered good practice to begin interviews with easy questions in order to build interviewees' confidence and enable rapport to be established (Dunn, 2010), I considered it best to begin with a broad question. Generally I felt that by the time the interview began I had had a chance to develop rapport with participants. For those recruited through door-knocking, this was my second meeting with them, and for those engaged through snow-balling, a certain trust was



generally established through via the friend's connection from the beginning. I made efforts to establish a friendly and comfortable connection by chatting to them a little before the interview and sometimes during their completion of the questionnaire (Dunn, 2010). Rapport was easier to establish than in some other research situations because my socio-demographic and cultural background was very similar to that of my participants. After the preliminaries of gaining consent and explaining the research, the first question was *Can you talk to me a little bit about your experience of looking for a house to live in/buy?* Where this was too broad and participants were uncertain of how to answer, a follow-up question was asked: *What kinds of considerations do you remember thinking about?* This was done in order to allow participants to speak to what first came to mind for them, rather than me leading the interview in a particular direction from the beginning (Dunn, 2010).

The interview guide was used flexibly, and I allowed the conversation to evolve as naturally as possible as recommended by Dunn (2010). Each new line of questioning in the interview deliberately began with a broad question in order to give participants space to give their own perspective. Towards the end of the interview I took a moment to check that all my questions had been addressed. Further to the interview guide, follow-up questions were asked over the course of the interview to follow interesting seams of information or clarify opinions to ensure I had understood correctly. Interview questions and the order in which key topics were covered therefore differed slightly among participants.

Interviews were recorded on a dictaphone with permission. Participants were asked at the beginning of the interview whether they would prefer to receive a copy of the entire transcript to review and amend if desired, or whether they would prefer to receive only direct quotes intended for use in the final thesis. Without exception, participants opted to receive only direct quotes. The majority of the 29 interviews were conducted with only one member of the household present. Three interviews had both members of the couple participating, one interview involved three adult members of a household, and one couple was interviewed separately.

Questions were worded to project a balanced perspective so as to avoid leading participants towards giving answers they thought were desired. For example, when asking about people's

experience of commuting, they were asked: *Some people may value their commute time as a transition between work and home, while others may feel it is stressful or a waste of time. For you, what would be the ideal one-way commute time?* This wording has been used in other research on the topic, such as that by Mokhtarian and Salomon (2001, p. 710).

The interviews should not generally be assumed to represent the views and attitudes underlying the decisions of the entire *household*, but rather of the individual taking part in the interview. This was highlighted in the few instances where more than one adult in a household was interviewed and the answers between the individuals differed, sometimes markedly. Occasionally participants would also add views of their partners, highlighting how they might answer certain questions differently, which was all useful in gaining insight into the “black box” (Mok, 2007) of household travel priorities. Moreover, there is an inherent risk of bias in any research asking participants to reflect back on past decisions, as humans have a psychological tendency to overstate the benefits of a current situation of their choosing, in a process known as “cognitive dissonance reduction” (Festinger, 1957 as cited in Schwanen & Mokhtarian, 2007, p. 175) or “post-purchase rationalization” (Schiffman & Kanuk, 1999 as cited in Schwanen & Mokhtarian 2007, p. 175). A further issue which is inherent in this research approach is that individuals can rarely accurately recall details on rejected alternative options (Pagliara et al., 2010, p. 1622) so interpretation of interviews needed to keep this in mind.

## Ethics approval

Human Ethics Committee approval was obtained before fieldwork began (see Appendix D). The Committee granted approval on the condition of some minor amendments to the questionnaire, which were duly made. Participants were informed about the research, its aims and what participation involved, both verbally and via an information form which they were given to keep. All participants were asked to sign a consent form to confirm that they understood what participation involved, and their rights and the responsibilities of the researcher. They were informed that they could withdraw from participating at any stage, and indeed several did so as life events and other priorities took over (these households are not included in Tables 4-6 above). The information sheet, consent form and interview guide are included as appendices D to F. In order to preserve anonymity, pseudonyms are used for all participants and members of their households, with actual gender

preserved. Where necessary, basic details such as place of former residence or their exact work location is have been masked to protect identities as advised by (Dowling, 2010).

## Data analysis

All interviews were transcribed in Microsoft Word, and the transcripts combined with interviewer notes and reflections made both via voice recording and written notes during the fieldwork as recommended by Dowling (2010). Following the suggestion of Dowling (2010), a diary was also kept to hand to note down thoughts at any time of day and night, and thus to reflect on later and incorporate where appropriate. Doing the entirety of the transcription personally generated a familiarity with the content of the interviews and helped me to become more conscious of key themes. The transcripts and associated field notes were analysed systematically and key themes emerged through a process of reflecting on the data and creating a coding document which was generated by analysing each transcript. This was an iterative process and involved amending the codes and sub-codes in a process that involved reading and re-reading interviews to ensure completeness, and to allow time for reflection and for themes not initially considered to surface. Such themes also prompted a significant broadening of the original literature review to include more recent mobilities research. As advised by Richards and Morse (2007), the detail of the data was retained to the greatest extent possible so that it could be rethought and reflected on as themes emerged and more data and different perspectives were added to the dataset.

One point made by Richards and Morse (2007, p. 10) was particularly resonant when developing the two findings chapters:

*There is a challenge in reconciling the sometimes opposing requirements of different methods. We emphasize, rather than obscure, what we consider to be essential paradoxes inherent in qualitative research. Central among these paradoxes are the opposing requirements of simultaneous pursuit of complexity and the production of clarity.*

The most challenging element of writing up the findings was in teasing the complexity of human decisions and experience into a clear flow. Human behaviour and choices are complex, nebulous, sometimes contradictory, so while extricating motivations into sequential findings sections was

necessary, numerous quotes that overlap the boundaries of these silos were included to illustrate some of these complexities in participants' own words.

## Conclusion

This chapter has outlined the methodology and research tools used, including a discussion of the evolution of the research approach from mixed methods to a qualitative approach. This produced experiential perspectives to lend depth of insight into processes documented by more quantitative urban research. This chapter also introduced the research sites and the rationale for their inclusion, as well as some basic background information on participant households. The following chapter explores themes around residential location choice, including outlining the property, street, neighbourhood and wider location attributes that were most highly valued by households.

## Chapter 5: Residential location choice

### Introduction

Residential choice is complex to study because of the myriad factors taken into account by households. Each consideration has a different weight for each particular household, and often compromises between the needs and desires of different members within the household must be negotiated. Households work with imperfect information about the relative costs and merits of each possible property choice, as well as being constrained by supply and other vagaries of the real estate market at the time of house hunting.

This chapter addresses the first research objective, exploring households' main reasons for selecting their property and their location, and the nuanced interplay of considerations and circumstances that led to their eventual residential decision. It begins by looking at the common triggers catalysing households' shift, and examines some of the circumstantial and supply-related constraints participants faced in their property search. Participants' central priorities relating to property and dwelling attributes are explored, followed by a look at what role neighbourhood and area attributes played in participants' decisions to move to the four study areas of Linden Grove, Halswell, Rolleston and Rangiora.

### Triggers and circumstances of residential shift

A small number of trigger factors accounted for the majority of households' shift to their current home. Many of the life course triggers cited by participants closely reflected the findings of previous research (see Lin, 2012; Lee & Waddell, 2010; Zondag & Pieters, 2005; and Feijten et al., 2008). Of the 28 participating households, eight couples were pregnant with their first or subsequent children, and a further two were planning on expanding their family in the near future. Marriage was the trigger for one household's shift, and five households had moved to Christchurch from other parts of New Zealand after securing a job, one of whom had lived in Christchurch previously. Two further households were returning from living overseas with their young family, and in a situation specific to Christchurch, three shifted after finalising their insurance arrangements for earthquake-related damage or destruction of their previous property. Three had been renting and wanted to own their

own home. The remaining families shifted due to: desire for a newer or larger house; the desire to shift to a small rural town; and because their previous landlord had sold their previous rental home.

To varying extents, these triggers were associated with time pressures and other constraints affecting property search. Two families who shifted as a result of decisions from their home insurance companies had to move within three weeks and six weeks respectively. Three of the six expectant couples were in the later stages of pregnancy and wanted to be settled in their new home quickly to avoid having to shift amidst the upheaval of having a new-born baby.

For the seven couples or families shifting to Christchurch from other parts of New Zealand or from overseas, the property search came with its own obvious practical challenges. Two couples living elsewhere in New Zealand had made several trips to Christchurch to look at properties, and most couples searching *in absentia* enlisted the support of friends who would attend open homes and report back to them on the condition of the different properties. April, whose family was moving to Christchurch from the North Island for her husband's new job, recalls how the pressure resulted in her family not getting a home as suitable as they had hoped:

**April:** *It was almost like 'It'll do' sort of thing. Because we had, it was a bit of a—we'd sold our house, and I was coming down here for a week with the kids over the holidays and so it was that time you know, 'We've sold the house, we can buy now', you know?*

**Researcher:** *So a bit of a timing thing as well?*

**April:** *Yeah, and I suppose after seeing a lot of other houses [and having missed out on several at auction] and then that was end of September we were having to move out of our house up north on 1 November, so we had this period of 'We've gotta buy, I don't want to be homeless, don't want to stay with people, just want to move into a house'.*

Looking *in absentia* affected the types of properties searched for as will be discussed in more detail below. While rational choice theory goes some way to describing human behaviour in relation to residential choice, taking real world constraints into account is crucial. Not only did many participants face time constraints specific to their family situation, but most were also operating within a strongly competitive housing market in Christchurch. This meant that households had often missed out on several properties already, and, like April above, felt compelled to act swiftly to try and secure a house even when the property was more of a compromise on their ideal than they

would have accepted in a more muted housing market—particularly if there were situational time pressures related to the family situation and children in the household.

Another supply-related limitation was simply the choice of properties available at the time families were house-hunting, a constraint raised by other researchers in the field like Lin (2012). This was not only the case for those who considered buying an older home in an established area, but also in terms of which subdivisions had sections released at the right time. An exchange with a participant from Halswell is illustrative:

**Researcher:** *When you circled ‘Tend to Agree’ [in the questionnaire] about having little choice about where to live can you talk to me a little bit about that?*

**Laura:** *Kind of like that was the time restraint. So that was the choice factor there and I think your budget kind of takes away a lot of options and then yeah... budget and what’s on the market at the time—that’s the things that really limit choices.*

In line with Lin’s (2012) findings, the constraints, both specific to each household’s situation, and in terms of what properties were on the market at the time belie the conveniently simple assumption of rational actor theory.

## Key dwelling, property and neighbourhood attributes sought

This section focuses on the attributes that participants reported as being of highest priority in their property search. Many of the findings in this section are from the initial, most open-ended parts of the interviews which inquired about key attributes that participants sought when hunting for, and eventually purchasing (or in four cases renting) their current property. As described in other research on the topic, residential choice is a perplexing array of often interconnected and competing considerations (Eliasson, 2010), and it can be difficult to structure such a multifarious array of human thoughts and motivations into logical, sequential findings. In order to give some structure, this section will look at key factors and motivators raised by participants on an ascending scale, beginning with general attributes that participants desired specific to the *particular house or property*, which were in almost every case the primary consideration among households interviewed. Then, moving up in scale, desired street characteristics, neighbourhood characteristics and desired aspects relating to broader location will be explored. In order to preserve the complexity of participants’ competing thoughts and priorities some quotes that interweave several themes are

included in full. Analysis and description elucidating the relative weight of these will accompany descriptions of factors households considered to be important.

In line with Ærø's findings (2006) that dwelling type was for most households the primary factor in residential choice, participants' most common starting point when talking about their house-hunting process was to describe the property type they had sought. All households with young children wanted a stand-alone dwelling on its own section, consistent with Lee and Waddell's (2010) finding that single-family homes are a high priority for households with children. Of course the fact that participating families were by virtue of the recruitment strategy self-selected into single-family homes must be kept in mind. Among the sample this was such a fundamental priority that none had even considered any other dwelling type.

Beyond the house type, the most recurring attribute on people's wish list was a new or recently built house, cited by 23 of the 28 participating households. Six households established this as a priority only after some time researching the real estate market. Three of these ended up building themselves either after having become disheartened by the options available on the market and realising that building themselves would not cost substantially more, or after having had renovation plans drawn up for their existing house and likewise come to the realisation that building a new home would cost approximately the same overall. For example, Kate from Linden Grove said:

*Initially we had looked at remodelling the house we were in, because we loved the area and things there, and we wanted to have a house that was more suitable for teen living, because our kids were coming up to 11 and 14. And so we contemplated and priced that, and we had architectural drawings done, went quite down a long track with it... I thought, 'Ok that was one option,' and then the other option was to look at building. I'd sort of gone to a lot of open homes and things and thought actually we could build a new house for the same money that we were going to be spending upgrading, and we would have still have a 15 year-old house, not a new house, so in terms of the economics of it, it made more sense to build.*

All participants wanting a new house mentioned the warmth of the dwelling as a key factor. Several said that having children made warmth more important. One household had considered the trade-off in heating costs, commenting that even though a house with better insulation was more expensive now, they would save on heating costs in the long term while having a healthier, more comfortable home.



Five participants specifically referred to the fact that they had had a taste of living in a new, warm house and did not want to make a retrograde step to a cold, draughty home. A typical comment from a participant in Halswell follows:

**Andrea:** *So we were looking out this side of town, yeah. Newer properties. We wanted something less than 5 years old.*

**Researcher:** *Ah ok, why was that?*

**Andrea:** *Because it's warm. Low maintenance and it's warm. When you've lived in a new house you don't want to go back to a cold house.*

Others who had not previously lived in a newer home felt like they had “done their time” with the maintenance required by older properties. In total, 12 participants mentioned the lower maintenance requirements of newer homes, with a typical comment from Julie from Linden Grove:

*I mean we probably wanted a newish house. Cos the house that we had before this was an old villa. And so we did all that up and it's a lot of work, so didn't really wanna go down that track again. We definitely wanted a new house... Something that you didn't have to maintain. Only because we'd done it for three years in an old villa, you sorta get sick of it. And with a young family we just wouldn't have had the time...*

So just as children in a household make people more determined to have a warm house, their presence unsurprisingly also made them more reluctant to take on the work and time commitment of maintaining an older home. These are the two factors that make families a target market for new homes.

Other less frequently cited reasons for desiring a newer home were wanting two bathrooms (or a bathroom and an ensuite), cited by five participants, and four bedrooms (mentioned by nine participants), both of which are easier to find in newer homes. Open-plan living and modern kitchens were mentioned by a couple of participants, and storage space and generally larger rooms were also mentioned several times with one participant noting in a tone of resignation: “Kids come with a lot of *stuff*”.

One strong earthquake-related reason for wanting a new house emerged, namely avoiding the uncertainty and lack of transparency on the quality and integrity of repair work completed on houses post-quakes. April, from Halswell commented:

*So the other thing with buying the older houses was the earthquake you know? What's gone on... why are they selling? Were the repairs done? Were they kosher? So you'd have all that to worry about too.*

Several of the interviews were conducted soon after extensive media coverage of widespread instances of sub-standard earthquake repair work on homes in Canterbury (Daly, 2015; Meier, 2015) which several participants specifically referenced to illustrate their point. Four households made mention of the fact that houses built after the earthquakes would be likely to have a higher resale value. Liz from Halswell noted:

*Yeah, and I feel in ten years there's going to be a marker of 2011—is your house built before 2011? Yes it is, and then there's going to be that unknown earthquake risk that we'd just rather be ahead of. So in 50 years' time if we're still here then our house is after that point.*

One participant who had found the experience of the earthquake sequence highly traumatic wanted a new house because it made her feel safer. Surprisingly, this consideration was only mentioned once.

A related reason for wanting to purchase or rent a newly built property came from those participants who had moved to Christchurch with young families from other parts of New Zealand or overseas, and who were relying on friends to go to open homes, or flying into Christchurch for short house-hunting trips. For these families it was the assurance of a certain quality and standard that came with a new build, and the avoidance of potential 'surprises' that was an important factor—both in relation to the possibility of sub-standard earthquake repairs, and the general idiosyncrasies associated with older houses.

Another consideration specific to the individual property that was high on the priority list for one third of households interviewed was having a big enough section for their children to play outside. The security of the section was also mentioned by seven households as a desirable factor including a back section, child-proof gates or the ability to easily install these, and in some cases a good view from the kitchen area in order to be able to keep an eye on the children. Three households who desired both a new build and a large section size noted that this was difficult to find in established residential areas. This is because often new builds or land parcels available in established suburbs were on sections of around 400 - 500 square metres, which is a subdivided classic quarter-acre

section. The scant availability of sections that participants considered large enough was a push factor towards new greenfield subdivisions.

## Street attributes

Street type was a consideration for a quarter of the families interviewed. The desire to live on a street that is not a thoroughfare was specifically mentioned by seven households across all four study areas, with three of these specifically desiring a home in a cul de sac. The main reason discussed in relation to this was the traffic safety element, especially for those with young children. James from Linden Grove typified many comments, saying:

*Um, we wanted... not to be on a main road. Ellie's just turned four so it's quite important to be somewhere where it wasn't going to be like Halswell Road with just continuous traffic all day long—just in case.*

Concerns about traffic beyond participants' particular street of residence was also mentioned, again across all study areas, often along with reflections on their own childhood experiences of living in neighbourhoods with lower traffic volumes. One mother in Linden Grove reflected:

*When we were growing up it was fine to play in the streets and whip across to your friends' houses because it was a safe kind of environment, and I've always wanted that for my children, and as Anika's now getting older I couldn't let her scooter down to the shops on Lincoln Road, I mean it's ridiculous, I would just never do that. Whereas [there's a family with twins down the road] so I will let Anika scooter down to their house and that's fine. She can go across to Rosa and Josie's house and play with them and they can go across the park and I know kind of what time it should take her to do that or get home.*

**Researcher:** *What is it that concerns you when you think about the kids being out and about by themselves?*

**Michelle:** *Well, the traffic, but also you just don't know who's out there. But mainly that they would get hit.*

This dual concern around traffic danger and “dodgy types” was commonly mentioned, though traffic danger was of higher concern for most families. Several commented on the “community feel” that cul de sacs foster, including the fact that it was a lot easier to get to know neighbours in a cul de sac. A comment from Kate in Linden Grove is worth quoting at length:

*We'd never lived in a cul de sac, we'd always lived on a street, and you get to know your neighbours so much more in a cul de sac than you do on a street... Yeah, everybody knows*

*everybody, and you just all get on really well and you chat. I've never had that before, I've never lived in a cul de sac in all my life.*

**Researcher:** *And you think that's the major, one of the major...?*

**Kate:** *Absolutely huge, because just even putting out your rubbish, often you go out at the same time, yeah, it's just—people tend to stand out because there's no through traffic that you've gotta get off the road for or anything like that.*

**Researcher:** *Do you think that would be different on one of the thoroughfares in Linden Grove, in the same neighbourhood?*

**Kate:** *Oh definitely, when you're in a street you don't get to—you might get to know your immediate neighbour, but you don't, not to the same degree as when you're in a cul de sac. It's just that opportunity I think. That opportunity to go slow... to be out and see each other.*

Four participants stated that not living on a thoroughfare street made them feel safer, because of the intentionality of destination associated with cul de sacs—the fact that non-residents cannot “cruise through”. Paul in Halswell, who intentionally bought a property with this factor in mind said:

*And it is a very safe neighbourhood. There's no through traffic much here because this part of the subdivision is practically a cul de sac because there's no through-road up that way [points]—there's one road in and no roads out.*

**Researcher:** *So when you're talking about safety, what in particular are you thinking of?*

**Paul:** *There's not much vehicular traffic. There's not many people from other parts of town transversing [sic] through here.*

**Researcher:** *Are you thinking in terms of crime?*

**Paul:** *Exactly.*

Unlike more traditional, grid-based street layouts, the subdivisions participants live in tend to have layouts modelled on the classic American subdivision, with a profusion of dead-end streets joined by meandering collector roads (Duany, Plater-Zyberk, & Speck, 2000). The very location at the urban periphery of many of the subdivisions included in the study means that most of the streets have low traffic volume compared to streets closer to the town centres.

## Neighbourhood attributes

The socio-demographic and household characteristics of their area of residence were cited by many participants as key attractions. For the three bigger areas of Rolleston, Rangiora and Halswell, the perceived family orientation was a significant pull factor, particularly for participants living in Rolleston where four of the seven households mentioned family orientation as one of the top draw cards. Between 2006 and 2013 Selwyn district had the highest growth in the population of children

under 15 in Greater Christchurch (see Chapter 3). This finding is in line with research by Lee and Waddell (2010) the families tend to be attracted to areas where lots of other families live. An exchange with Nick from Halswell explains how living in such an area had helped create a community-type feel in his neighbourhood.

*Kids are an easy entry point I guess, in terms of relationships, and so most of the people around us have similar aged children, so you hear them over the fence and so it's kind of you know, 'G'day, how're you going, we've just moved in...' and then they start playing together and so, because of that you obviously get to know their parents as well. You know, it's people at a similar stage in life, lots in common even though you might not have a huge amount in common. Just because you can talk kids, and what they're doing, and what's happening at school.*

A further attracting factor to current neighbourhoods supports the findings of Bell (1968) and Michelson (1977, both cited in Ærø, 2006, p. 110) that households tend to seek out neighbourhoods with similar lifestyles, tastes and norms as themselves. This was a particularly strong theme among families living in Halswell, Rolleston and Rangiora. Two interview excerpts follow to illustrate.

Dawn from Rangiora:

*This is what we wanted. We wanted it out of the way, we wanted it to be a real subdivision, we wanted it to be nice, manicured, well taken care of and a place that attracts other families or retirement couples because then the noise levels are going to be ok... In Wainoni we lived right opposite a bus stop and that was like, when you've got children and Saturday nights, and right on Aranui [a low income suburb] you've got all the people that are noisy. And [offensive] language, and just not really appropriate...*

Amy from Rolleston:

**Researcher:** And you mentioned the family orientation of Rolleston was a factor as well?

**Amy:** Yeah, there's lots of young people, young families, lots of activities for young kids, or just kids in general, yeah. And you feel safe while you're out here, participating and that kind of stuff

**Researcher:** Safe from?

**Amy:** Oh just, I used to live quite close to New Brighton and just some of the stuff there was not ideal, more some of the behaviours of some of the people around our house—that sounds really judgemental, but having young kids—I wanna try to protect them from that kind of stuff as much as I can, so yeah, it's probably a socio-economic difference as well from where we lived to here, and the expectations of the people around you, and they're working hard, they enjoy having a good time, but like they're families, you know they're not up till

*three in the morning blaring music, they've got kids that have to get up and go to school. With our [former] neighbours, not so much.*

These go directly to the findings by Ærø (2006) that people tend to be attracted to areas with similar cultural norms and expectations as themselves. Dawn's reference to the attraction of neighbourhoods with retirees was echoed by three other participants and related to notions of safety, quiet and stability in a neighbourhood. Many participants had negative associations with high levels of rental properties and two were wary of housing types that were perceived as being likely to have renters in them being built in their subdivisions. For example, Laura from Halswell said:

*We're getting row houses [in our subdivision] as well. Like we didn't know that [before moving in].*

**Researcher:** *Oh didn't you? How do you feel about them now?*

**Laura:** *Hm, we just don't know what kind of people will end up buying there, we don't want it to be full of like, I wouldn't say students, but like renters. I'd rather have a place full of owners rather than renters because it feels more stable, and you'd know who's there, and the people coming and going, and you know the neighbourhood. So it's just a bit of negative there.*

Apart from the stability of the community, other participants mentioned that renters may be less likely to take care of their residence, and there was a perception by several participants of greater control of who your neighbours are likely to be in a new subdivision. Dawn from Rangiora said:

*[Here] we know what we're in for, in terms of neighbours, whereas it's pick and mix when you're in Christchurch when you're in a neighbourhood. Houses are close together and when you're anywhere in town, it's anybody, anyone could be renting next door, anyone could be buying. It's just a bigger cross section. I mean obviously in some places there's a different demographic of people, but you still can't control it... I think there's far more owners out here that have bought and built, than landlords... Yeah it's more stable and then the community builds itself, and people respect their properties far more when they own it, so I've seen. Like people will water their lawns, and they'll clip their hedges because it's theirs and it's what it says about them, but when they're renting you can probably pick the houses that have renters in them because they'll mow their lawn but they won't feed it or spend the time watering it, because it's not theirs.*

While dwelling type and property attributes were generally the first thing people talked about with regard to residential choice, wider street and neighbourhood attributes and demographics also had an important influence on people's locational decision.

## Considerations relating to area and broader location

Financial considerations were, unsurprisingly, a central factor in participants' weighing of property purchase and rental decisions. These were mainly in terms of immediate concerns of what they could afford, and to a lesser extent related to expectations of resale value. Many participants' general approach was to calculate an approximate figure of what they could afford to spend on a house, and then look at how they could get the most for their money. Liz and Robert in Halswell explained their thinking process which was similarly articulated by three other participants, and less directly implied by many others:

***Liz:** So we started looking to see what our money could get us, and we were looking between the Ilam side of town, and here. And trying to see basically what our money would get either side. Um so quickly came to realise that we'd rather have a new build for the same price.*

***Researcher:** For the same price as around Ilam?*

***Liz:** Yeah, so compared, for what we were going to spend, we'd get a rundown place in Ilam or a brand new one here.*

***Robert:** Yeah, single glazed, maybe not so much insulation, yeah, and obviously higher heating costs and stuff.*

For many residents value for money was construed as a question of location. For example, two residents of Rolleston estimated that they paid around \$50,000 less for their property in Rolleston than they would have paid for a similar property within Christchurch City, including in more peripheral subdivisions like Halswell. Value for money consideration among participants from all four study sites was generally not in regards to saving money by spending less, but related to the quality and dwelling specifications they could get on their set budget. Several typical quotes follow:

***Researcher:** Is there anything that kind of puts you off the idea of living in Christchurch?*

***Amy:** Um, I don't, well I just think for—it sounds really snobby because I keep saying it—but the value for money is just like—when I see what my friends bought for the same price in Barrington sort of Spreydon area, older house like 1960s, old kitchen, everything, and they paid \$30,000 more than we did out here, I'm like 'Wow!' And they love it, that's great, so that's where they're happy, but I wouldn't spend that kind of money on a house in Christchurch right now, for what you're getting.*

Dawn in Rangiora said:

*Our other contender was Avonhead. Like if we couldn't afford a subdivision, Avonhead's probably around the same price range actually, but considering [the choice is between] a really nice brand new home in a subdivision or a modest house in Avonhead...*

While there were some conscious trade-offs regarding house quality and affordability of newer home on the outskirts, no participants had consciously weighed up the extra vehicle running costs associated with location against mortgage payments. This is examined further below.

### The importance of domestic and child-related amenities

In negotiating residential location options, many households prioritised the accessibility of amenities related to family life and the needs of their children over other accessibility-related considerations such as work commute. Participants tended to be conscious of the range of amenities available in their local area when choosing a house, and in line with the findings of other literature there was a fairly narrow range of key amenities most highly valued by families with young children in particular. Those most frequently listed included parks and playgrounds, schools, supermarkets, swimming pools, sports fields, libraries and large retail stores like Farmers and The Warehouse. Similar to Feijten et al. (2008) and Blaauboer (2011), the research found that the suburban developments studied made generous provision of many of these family-oriented amenities. Participants in all four study areas, in particular those with pre-school and primary school age children frequently mentioned the high value they put on the abundant provision of greenspace and parks in their neighbourhoods

There was little preoccupation with congestion and traffic conditions related to the accessibility of these amenities, as child-related activities were often flexible and planned to avoid these times (except for the school and pre-school drop-off). The ability to walk (or in one case cycle) to frequent children-oriented destinations was a conscious attraction in residential choice for seven of the households, while almost two-thirds mentioned that they like being able to walk to local facilities even when this had not been a conscious factor when choosing their residence. The most common destinations walked to were local parks, and school and pre-school.



Several of the participants who have a young family stated that they don't actually "go out" anymore, and so the amenities they need are generally focused around their children. For example, an excerpt from the interview with Monica in Rangiora:

**Researcher:** *So I can see a lot of your frequent destinations in your travel diary—supermarket, school, preschool, netball... Are there any other places that you go, say on a weekly basis?*

**Monica:** *Um, no. I mean we're coming into winter now, we'll do winter sports on a Saturday which is the football over here, or my eldest is going to play ripper rugby so we'll travel around a little bit for that, but yeah other than that it probably is quite a boring little life we need—same old!*

The fact that the key amenities desired by households had shifted since having children was inferred by several participants, especially in relation to what Christchurch's central city has to offer them. Central Christchurch held no appeal for the majority of participants. Some noted that they had rarely gone to the central city even before the earthquakes. Many commented that there was simply nothing in the central city that they needed, especially now that they are raising a family and have different priorities. Michelle noted that while there were some new bars and pubs in the city but that they were "past that now". Laura from Halswell said:

*[Lots of my husband's friends] bought second hand houses in Burwood and they kind of made it feel like he was buying in the wrong area himself because it was too far away from the centre of the city, but in all honesty we don't actually go into the city centre. Ever. It's just—we've only gone there once just to see what the Container Mall was about.*

**Researcher:** *Right, so his friends almost made him feel a bit silly for moving out here?*

**Laura:** *Yeah, yeah, they were like 'It's too far away' ... Yeah, but there's definitely nothing [in the city]. Like I feel like we can get a lot out of what we want to do in our area, within 10 minutes radius from where we are.*

Five of the seven participants in Rolleston specifically mentioned that the town provides most of the amenities that families require on a weekly basis, and that the fast growth rate meant that more and more amenities were being built to serve local needs. For example, Victoria in Rolleston said:

*Travel costs was a thing that we did think about, was is it going to cost us a lot more in petrol? [But] at that stage I was pregnant, so I wasn't going to be needing to be in town. And then the thought of the growth out here and the amenities sort of outweighed that, we just thought, 'Well, eventually it's going to get to the point where we're not going to need to head into town and travel costs won't be an issue'. And to be fair, they're not.*

Amy was similarly attracted to Rolleston. She had previously lived in North Beach, in the east of Christchurch, with her husband and child, and she estimated that she would drive a far greater distance on a weekly basis were she still living at her old location, simply because the services and amenities she needed for her young family were much closer by in Rolleston:

**Researcher:** *So what were the key reasons that you immediately thought of Rolleston when you were looking for...*

**Amy:** *Value for money, family-orientated space, like as a growing family I've got all the shops here that I need, like two grocery stores, and The Warehouse, and doctors and pharmacies and that kind of stuff.*

Similar comments were made about Rangiora's amenities, and the fact that it offered a range of facilities used frequently by their family. For example, Tom and Lori said:

**Tom:** *I liked that it's 5 minutes across to the [Rangiora town centre], and we've already fitted in alright, in a touch team and a netball team, schools and the swimming pool.*

**Lori:** *We were already coming out here to come to the swimming pool anyway, we did used to come out here anyway didn't we? And yeah, like Tom said, it's really quick to go into town—there's not a huge amount in town, but if you need anything, it's really quick to get—and you can walk there, which we sometimes do, and good preschool out here, good parks, there's heaps of parks around isn't there, for the kids? The skate park—Jack's favourite place.*

Similarly, for Maria the fact that she had so much of what she needed available in Rangiora was a factor in her decision to move there.

**Maria:** *I don't like being this far away from the city, I'm a city girl at heart, I don't like being out in the countryside at all. I find it quite quiet and quite restrictive, so Rangiora was a happy medium because it is quite big, and it has its own little high street, and I don't need to go anywhere, I've got everything here. Whereas if I was living somewhere like Oxford [a smaller rural town] I'd go crazy.*

While Halswell was generally perceived by its residents to have good access to parks, preschools, primary schools and playgrounds, the area was reported to lack some local facilities, with three of the six households stating overtly that there was a dearth of cafes, shops and other amenities. However, most residents interviewed in Halswell expected this situation to change with the high growth of the suburb. For example, Robert and Liz:

**Researcher:** *Did you think much about the neighbourhood and the feel of the neighbourhood?*

**Liz:** *I don't think we were too—like we really liked the subdivision, we liked...*

**Robert:** *We liked that there was a playground over there, that there are shops, and a likely growing centre, yeah within walking distance.*

**Liz:** *Halswell itself didn't excite us, doesn't excite us... But there's not a whole lot of facilities in Halswell yet. But we liked the idea of the subdivision, it was harmless. And there's talk of a new school going across there, a primary school, which is really neat for our daughter but um, nothing's confirmed but we just figure there's got to be because there's a ridiculous amount of building and there's no real facilities in the area and it does lack—you've got to leave Halswell to do stuff.*

A Halswell community centre is currently under construction. This will incorporate the outdoor council-owned pool and include a new library, council service desk and large meeting spaces (Cairns, 2014). It is expected to open in November 2015. As will be discussed further below, a key attractor to Halswell for two-thirds of the households interviewed there was the proximity of family and friends already living in the area, rather than the draw of local amenities which was such a big attractor to Rangiora and Rolleston.

### The (ir)relevance of Christchurch Central City and the draw of the suburban mall

The research areas were chosen in part as a function of distance from Central Christchurch, which was founded on a working assumption that the Central City still holds some relevance for Christchurch residents. This was not found to be the case. Very few interviewees felt any affinity with, or draw to, the Central City, neither to live in or near, nor to visit—and many reported avoiding it completely. Aside from the few Rangiora and Rolleston participants who work in Christchurch City, the majority of participants from these two further study areas reported going into Christchurch City on average only 1 to 2 times per week (and sometimes less often). In a typical comment, Valerie who lives in Rolleston said:

*I don't go into the central city, not really no—I don't often go, don't need to go for shopping because there's Hornby, you know I don't need to go into town. There's no real draw and to be honest I hate parking, the idea of trying to find a park and the way that everything's so changed now I wouldn't know where to go or what to do or where everything is, so there's no real draw.*

General perceptions of the inner city were overwhelmingly negative. When talking about Central Christchurch, people's perceptions were dominated by traffic congestion and roadworks (mentioned by seven participants) and noise (mentioned by four participants). Six participants stated frankly that

Central City doesn't have anything to offer them, particularly since the quakes. One Linden Grove participant lacks faith that Central Christchurch will ever really recover, saying:

*I just think that the central city's sort of never going to be the central city again personally. I don't think it's – I think it's moved and everybody's sort of moved on from there and set themselves up in different areas, and it's just gonna, Christchurch is gonna be a different city now.*

A common statement was that “town” had shifted southwest to the suburb of Addington, for example this excerpt came from an exchange following Nick's comment that he liked living close to “town”:

**Researcher:** *When you think of town, which area are you thinking of when you say town?*

**Nick:** *Yeah, good point, so this [Addington] would be town for me. Because you know in terms of friends, supermarket, all those kind of things, there's stuff in Halswell, and my work which is [in Addington] so it's probably on this side of town if that makes sense, it takes up quite a few k's if you're in the central city or somewhere else.*

For almost all of the average once-to-twice weekly trips made into Christchurch City by Rolleston and Rangiora residents, participants reported that most commonly going directly to the shopping centre or mall nearest to the outskirts of town. For Rolleston residents this is The Hub shopping mall in Hornby (approximately 13 km distance) and for Rangiora residents the nearest mall is Northlands Mall (approximately 24 km distance). Amy in Rolleston said:

*So I don't feel like Christchurch is as far away as it used to be. You know, like people used to think that Rolleston was so far away from Christchurch, but after the quakes the city has kind of migrated south-west a lot. It takes me like 10, 15 minutes to get into town. Ten to Hornby if I need something, but most of the stuff I need is here [in Rolleston] anyway. But like I went to the mall yesterday and I was like 'Yeah!'. So I don't mind going to Christchurch at all, but it's just more like cos I want to, not because I have to go to the shop to get something.*

For any retail or other amenity needs of those living in the three peripheral study areas of Halswell, Rolleston and Rangiora, participants referred almost without exception to the closest mall near the suburban outskirts of their side of the city. Six of the seven households in Rolleston mentioned how easy it is to get to Hornby Hub mall—an approximately 12 minute drive, much of it in a 100km speed zone, and offering major supermarkets, banks, department stores, clothing stores, discount stores and hardware stores. Similarly for Rangiora residents, both The Palms Mall and Northlands Mall are around 20–25 minutes' drive away, primarily along high capacity, high speed motorway—a

consideration highlighted by four of the seven participants in Rangiora. Even Halswell residents report taking the motorway to Hornby Hub mall, further out of the city. Motorway access to Christchurch was fundamental to participants' conception of travel, and interviewees frequently mentioned key destinations being on "this side of town" because this allowed quick motorway access without the slow speed limits and congested traffic conditions associated with city streets.

For example, Monica in Rangiora emphasised the ease of getting to Northlands Mall in Christchurch:

**Monica:** *I'll probably take Zach into Northlands maybe one of the weeks [in the school holidays] and we might go in and do something, Willow Bank [Wildlife Park] or something, so that's a couple of trips, but again we don't go that far in—you know we'd only go sort of, the furthest is Northlands Mall. [Which is] totally easy access from here—because I was even talking to someone, and the Palms Mall is probably not that much further in from here, like if you went out the Marshlands Road way—but because we're so familiar with Northlands we just go straight in and straight out.*

Monica went on to emphasise the rarity of venturing further into the city:

**Researcher:** *So how often would you end up going into Christchurch, say on average in a month?*

**Monica:** *Well I definitely go in once a week to Northwood [to check our post box]... but venturing further than Northwood hardly ever really.*

**Researcher:** *And when you do venture further than Northwood, what are the main places you'd go?*

**Monica:** *Um, can't even think... right into the city it must have been last weekend, we went to Rebel [Sport] which is on Moorhouse Ave, and I was like 'Oh my gosh I haven't been that far in for...'—I couldn't tell you the last time we went in before that!*

Even for residents of Halswell within Christchurch City's boundary, motorway access was cited as enabling quick, efficient access to amenities on the city's periphery like The Hub mall in Hornby.

**Robert:** *And you know, having the new south west motorway you know, just skirting along the motorway or Lincoln Road to work is really good.*

**Researcher:** *Right, there is good access?*

**Liz:** *Really quick, yeah, we're in an easy spot for motorway access which is good... it takes us less time to get to work now than it did when we were over in Avonhead. It's just you're stuck in traffic. It might be closer potentially but you're stuck in traffic. So no, it's still Christchurch, you're still going to have to travel.*

When asked about what amenities she valued locally in Halswell, Heather said:

*Probably things like the supermarket, the New World. There's the post office, there's the Vicarage, a restaurant-bar, there's the BP garage close by, and now the motorway actually works for us as well, so even though I know that's not an amenity but it's close to hop on.*

**Researcher:** *Has that made a difference to accessibility, to –*

**Heather:** *I think so, it's quite handy especially if we want to take the kids to the beach or, you know Ferrymead it's a really quick journey and now we have a couple of choices getting into town—do we go down Halswell-Lincoln Road or do we take the motorway and then cut in—so for us we found it beneficial.*

These comments illustrate in a personal way the magnetic pull of motorways in encouraging development in areas they serve (Noland & Lem, 2002), and may indicate another driver of induced travel—if new motorway or other roading capacity extensions not only allow people to travel further faster, but also increase the pleasure of these journeys, then this may be an element that research on induced demand needs to take into consideration.

### The attraction of rural living

For over a third of the participants living in Halswell, Rangiora and Rolleston, the rural feel of these areas was a key attraction, rather than having been drawn to these more peripheral areas due to affordability considerations. This preference for rural character was further underlined by four participants from these three areas who revealed aspirations to one day own a lifestyle block. Laura from Halswell's comment was fairly typical:

*We liked it because it's kind of got a bit of a rural feeling to it, because there's lots of paddocks around which my husband loves. Like we would ideally have a lifestyle block if we had an extra couple of hundred thousand dollars.*

Several Halswell residents commented that the rural feel of the area which had attracted them to the area was now fading because of the fast rate of residential development. Nick, who is considering moving to Lincoln (a rural town south west of Christchurch), said:

*Like this sounds terrible, but Halswell when we first started living there three years ago, it felt like you were living outside the city, because you know you go through—just down Lincoln Road it goes from 50k to 80k—you drive through a bit of farmland and then you used to get into Halswell. And now with Aidanfield [subdivision] on the right hand side, and there's another subdivision going to go in on the left hand side, so there's literally going to be houses*

*all the way, and so you're going to very much feel like a suburb of the city, whereas we liked that Halswell felt a little bit more remote than that.*

Of the ten participants across Halswell, Rangiora and Rolleston who mentioned the rural feel as an attractor, six had had a rural upbringing, in line with research (Ærø, 2006; Lin, 2012; Feijten et al., 2008) which found that residential area type experienced in childhood has a strong influence on future residential choice.

In describing the small size of the towns of Rangiora and Rolleston as a major attraction several participants mentioned the “community feel” of a place where people knew each other, felt known and safe, and greeted each other in the streets and the local shops. For Victoria, this was the main attraction of Rolleston:

*Just because it was very community, and we did—while we were looking we did go and stop at the pub for a drink and we went to the supermarket and we just did a few of those things while we were looking to get the feel of it, and it definitely was people talking, chatting to you, even though they didn't even know you. Yeah, no we definitely just yeah—a smaller community I think, that was growing.... I did think about schooling but then that completely went out the window because I wanted small. No, just community, no, that's probably it.*

Monica from Rangiora had similar views:

**Researcher:** *What is it that you liked about that, about the lifestyle [in Rangiora]?*

**Monica:** *I dunno, it might just be my nature, I just like quieter, smallish towns where you get to know people and become familiar with people and yeah, I'm not a big city, busy person. I don't like the hustle and bustle of the city, and don't like the traffic of the city.*

Three residents of Rolleston mentioned the attractiveness of a town that would “grow with them” as their children grew up and facilities in the area added with the growing population. The newness of the area in general, especially of facilities like the swimming pool and playgrounds, were noted by several people in Rolleston, for example Amy in Rolleston:

*[I just liked] the idea of Rolleston being a growing area, and newer houses, and newer facilities, and newer kind of just everything—you just knew you'd be part of something that was growing.*

Answers given during interviews which elucidated preferences about area type revealed a distinct difference in aspirations between Linden Grove households and those in Halswell, Rolleston and Rangiora. In response to questions asking people to describe their dream home and its location in

the absence of any financial constraints, Linden Grove participants tended to aspire to live in the established hill suburbs of Sumner and Cashmere (three of the five households) or would choose to stay in their current subdivision near the central city, sometimes with a bigger house. Only one Linden Grove participant mentioned that her husband would like a lifestyle block, whereas among participants from Halswell, Rangiora and Rolleston, four had such aspirations, and a further five desired property in other new subdivisions on the city's periphery, like Westmoreland, or in new subdivisions set in rural areas, like West Melton.

Consistent with research by Bootsma (1998 as cited in Mulder, 2007, p. 272) which found that all other factors being equal, households with a stronger focus on careers were more likely to live in urban areas, Linden Grove had a significantly higher proportion of households with two full-time workers in professional careers. While the vast majority of the children in the three other study areas were pre-school and primary school age, children in Linden Grove households tended to be older, of later primary school or high school age.

### School zones

School zones were a consideration for many households, sometimes in different ways than might be anticipated. In light of Rolleston and Halswell's significant growth rates, many participants whose children are still pre-school or early primary school age simply assumed that by the time it became relevant to their children, high school options in their area would have been provided for. In Rolleston's case this is proving a realistic assumption, with Rolleston College projected to open in 2017, and a new primary school in Rolleston planned to open over the coming years (Sherwood, 2015).

Altogether, school zones were cited by eight of the 27 families with pre-school or school-age children as a major factor in residential decision. Of these, three cited the fact that their negative perceptions of the local school had been an impetus to shift from their previous residence. Four families explicitly stated that they were not planning to move out of the area before their children had finished at their current schools in order to minimise disruption to their education.



For other participants, future schooling was just one more factor in an already stressful decision that was eventually relegated to the bottom of the priority list. April in Halswell who has two children of primary school age recalls:

**April:** *Oh we did think about [high school zoning], but then we thought ‘Oh you know, we should just worry about that later’. I know it’s—it was just another thing to add to the box that’s like ‘Oh, god, that’s a few more years away, let’s just not worry about that right now’.*

Several participants consciously chose not to live in areas of town where they considered that the particular school zone had pushed property prices up beyond reason. For example, Liz from Halswell noted that they had stopped looking in Ilam (which is in the highly desired Burnside High School zone) because she did not want to pay extra for a school zone when her child is still pre-school age. An exchange with her and Robert follows:

**Researcher:** *So out here [as you mentioned] you had new build, better insulation, lower heating costs, new house, lower maintenance...*

**Liz:** *And don’t wanna pay for a school zone that I don’t think is worth paying for.*

**Researcher:** *Right. Was it kind of Ilam is that—are the prices inflated there because of Burnside [High School]?*

**Liz:** *Yeah, you’re paying to get into Burnside High School zone, and some of the primary school zones, so you’re paying a little bit extra for those kind of—for that. We don’t have any zone, we don’t have any great zone here, but we’re not worried about it because we think that it will be ok in future.*

**Robert:** *When time comes with this one [indicating their pre-school aged daughter].*

**Researcher:** *Yeah, still a wee while to go.*

**Liz:** *Yeah, so didn’t want to pay the extra for something that didn’t concern us right now.*

Two participants had not thought about schooling as a factor at all, with one in Halswell considering himself lucky that the house they bought happened to be in a good school zone, and a participant in Linden Grove frustrated by the lack of what she perceived were quality high school options in her area. She stated that this factor may push them to shift before her children reach high school age.

## Did people specifically want to live in new subdivisions?

One underlying question was whether new residential subdivisions held attraction in and of themselves, as distinct from the specific property people were purchasing or renting. As expected, the answer is mixed. While many participants did not have strong feelings on subdivisions one way or another, five were specifically attracted to new residential areas because they found them

aesthetically pleasing and enjoyed the tidiness and newness of the neighbourhood. Two comments, from participants in Rangiora and Linden Grove follow:

**Dawn:** *This is what we wanted, we wanted it out of the way, we wanted it to be a real subdivision, we wanted it to be nice, manicured, well taken care of and the place that attracts other families or retirement couples...*

**Sarah:** *I think I just liked the modern feel of this area. All the new houses and the fact that all the gardens looked quite well kept. Yeah and all the trees, I liked all of that. But yet it was also easy to get around, so yes. One of the main things was it was a new area, and, just all the other modern houses, I quite liked that.*

On the other end of the spectrum, seven interviewees actively disliked new subdivisions in general.

The most commonly given reasons for their low appeal were the lack of established trees and shrubs, the perceived lack of character and the “cookie cutter” feel of many subdivisions. For example, April said:

*It would have been nice to have had a bit more time, or for me to be here [in Christchurch rather than house hunting from a different part of the country]. Yeah, I think we might have had a—we just could have maybe waited until we found... that house that I really wanted. Because what's lacking with this is I hate is the lack of trees.*

When asked whether she was attracted to the general feel of her subdivision in Rolleston, Kristen, who had also house-hunted *in absentia*, responded:

*No, I don't like it, I don't like it no. Everything looks the same. I'd wanna live in a house that looks quite different and that has character and yeah... I didn't realise how much I'd miss the beach, moving away from where we were to the middle of the country, and then because in there they got the bulldozers to come, there's just NO trees, and there's NO wildlife.*

Particularly for the third of households interviewed who were under moderate to severe time constraints when house hunting due to factors including pregnancy, conditions associated with insurance pay-outs, and family shift from overseas or other parts of New Zealand, moving into a subdivision seemed to be primarily a matter of availability, of where there were houses and sections for sale at the time that they were looking to buy, like Holly:

**Researcher:** *Was there any added attraction in living in a newly built subdivision or...?*

**Holly:** *Not really, it was just because that's where the sections were to buy, they're reasonable sections so we had to go with a new [subdivision]. To me I would rather be on an already established place with trees and foliage and you know, already—and with a nice*

*garden, I'd much prefer that. A new subdivision to me is boring, it's all houses, there's no greenery because nothing's built up yet, or grown. I hate that, I'd much rather be in the country. You know, but yeah, so unfortunately we just can't get what we want, we have to buy an affordable section within a new subdivision—that's just the only way we can go really.*

For those wanting to build their own home and therefore looking for sections, three participants specifically mentioned the real estate principle of avoiding owning the “best house in the worst street” which pushed them towards purchasing a section in a subdivision. Kate from Linden Grove reflected on their search for a section on which to build:

*In terms of, you know, you could put a new house on an empty section but then you're probably buying or building in an old area so you end up probably with the best house on an older street, as opposed to just being as part of a group, so for me for value and for resale at a later date I just thought it was a better investment.*

This may well be another reason that people are drawn to subdivisions, even if they are not fond of the homogeneity and lack of character mentioned by seven participants. Beyond this, and amidst the time constraints faced by so many, it appears that a substantial proportion of the participants ended up living in a new subdivision as a simple practical function of where property was available at the time they were looking to buy.

Linden Grove represents a significant departure from the character of most greenfield subdivisions, with respect to the fact that the property developers retained and put under protection the many established trees—a fact that every single participant from Linden Grove mentioned, unprompted, as a major attraction. The presence of these mature trees ameliorated several different negative factors commonly associated with subdivisions, including lack of character, repetitive construction form, lack of vegetation and wind exposure. Some comments to illustrate these issues follow:

**Researcher:** *Did you kind of have a sense of the subdivision—like did you come here and have a look?*

**Anthony:** *Yes, we'd been here several times, and you know, it's a brilliant subdivision because it's got all the old trees, and um, and it would be unique in terms of subdivisions where you've got such a well-established setting and all new housing.*

Kate's views were similar:

*When we found in here it was just a wee gem, it was probably one of the most under-promoted areas around, very few people realise it's in here, all the old trees... This one wasn't*

*like a new area because of all the trees and things, and the river. It kind of had just that right old feel to it, but you were getting the new... And you just drive in the area and you just have this sense of calm, it's really bizarre, you come in and it's just really calming. Yeah, especially when I've been in other ones and they're kind of like concrete jungles because things weren't established but you know...*

**Researcher:** *Did you look at Halswell at all, just up the road?*

**Kate:** *Yeah we did, but again, it was the trees and the, just the feel in here and the section sizes—some of the sections in here seemed to be a little bit bigger and I kind of just liked the layout more, it didn't seem to be everybody on top of everybody. You know, less cookie cutter... I think the trees make people have to design their house slightly differently so you weren't back to back because you've got a great big tree in the middle of it, so you didn't feel like you were on top of each other.*

Through Ngāi Tahu Property's retention and protection of the established trees, Linden Grove managed to provide many of the factors desired by families—new houses, calm, quiet dead-end streets and accessibility to amenities—without the lack of character that many participants identified in typical subdivisions.

## The influence of prior experience, and family' and friends' proximity on residential location choice

While the previous sections considered more general attractors to the various areas that influenced residential choice, more specific factors personal to households will now be briefly examined. For many participants who had been living in Christchurch City or in greater Christchurch before acquiring their present home, familiarity with the general area came through as one of the most powerful influences in their property search. For some, this draw stemmed from emotional attachment and sense of comfort, security and familiarity in the area, as typified by the following quote from Laura in Halswell:

*My husband actually really wanted to buy out Parklands way—but I really don't like that area personally, because I've got no memories from out there. All my memories are from this side of town and I just feel like my compass is in the right place. I feel in the right area for us.*

Several participants echoed similar place attachment which strongly guided their property search. Usually this familiarity related to a fairly broad area, with participants using terms like “this side of town” or “out here near the hills” rather than referring to a certain suburb. For some participants, the pull seemed to be more practical than emotional, for example they were familiar with the shops, services and amenities like swimming pools were located nearby, saving them having to do research

about other areas. The search strategies of many households reflected the finding of previous research that households often restrict their search to a few neighbourhoods (Lin, 2012).

### Proximity to family

The consideration of having family, especially parents, living nearby had grown in importance for many couples since having children, and was ranked highly by 12 households across all four study sites. Living near their parents was a factor for three of the households with a fulltime stay-at-home parent who wanted to be able to walk to their own parents' (and in one case sister's) homes for regular visits. For Laura in Halswell, family proximity was one of the central factors in residential location choice:

*So yeah, basically I'm a stay-at-home mum, so I tend to work around a budget. I tend to do things that work with that, that means a lot of walking instead of using the car. They're not in childcare, so we just go to the park, go for big walks and visit my family who live really close by, so that was a key factor in actually buying the place. Because we lived in St Albans and the traffic between here and there it was quite busy so yeah, my husband's from Dunedin and he said, 'Well if we're going to be up here not down there with my family then we need to buy somewhere close' because the reason he is here is because my family is here and being close to them was what I want really.*

For Valerie's household, the desire to be close to her husband's parents was a strong pull factor in moving to Rolleston, particularly since they help with childcare when she is working.

**Researcher:** *So you said you only considered Rolleston, Lincoln and Prebbleton, what was the draw out here? What were the reasons for that?*

**Valerie:** *My husband's parents live out here. And cos at the time Lucas was 3, so we were thinking about when he goes to school, after school care, before school care, that kind of thing. And [the grandparents] have the boys on a Monday, and they have since Lucas was a baby, yeah so we thought if we were out here it's easier for them, you know we can just drop Lucas off and they can do their own thing at their own home as well.*

Two households in Linden Grove had parents or a sibling living in the same subdivision, and a further three participants had had parents or other family members relocate close to them since they moved in. Living close to family was one of the most important considerations across all four study sites, and significantly more important overall than proximity to work.

## Proximity to friends

For six households interviewed (all from Rolleston and Halswell in the southwest of Christchurch), proximity to friends was a major consideration. This tended to be ranked more highly by participants who have no extended family in Christchurch. For Nick, who is not originally from Christchurch, the fact that he and his wife had several friends from church with children of similar ages living in Halswell was one of the major attractions to the area:

*So we wanted a bit of space, in terms of section size, but then we also wanted something that was brick and tile, low maintenance and so if you add those things together in kind of Cashmere, St Martins then you're paying quite a lot of money. And so we found that by looking at Halswell, we could get more value for money really, and so we could get those things at a lower price and so Halswell was kind of the second place that we looked, just because we had a lot of friends who already lived in Halswell.*

Nick talks of the effect of this having a kind of snowball effect:

*It's pretty cool, because once you get a few families there, it then becomes almost a community thing. It was never an intention for [so many of our friends] to move to Halswell, it just kind of happened that way. But then you get a few families [living in the area]—it starts factoring into other people's decision making. So two of our other friends who just moved to Christchurch in the last couple of years, it was kind of 'Oh where would we like to live?' and they were looking at other places in town but then of course it was 'Oh well quite a lot of our friends already live in Halswell' so they moved to Halswell as well.*

Two households in each of Halswell and Rolleston perceived themselves as part of groundswell shift towards the west and south-west of the city. These four participants had a number of friends whom the earthquakes had prompted to shift to a range of suburbs in the southwest of Christchurch where land had proved more stable during the earthquakes. They followed suit, with their friends' proximity being one of the attractions. For example, Amy and her husband had several friends and family members who had already shifted to west and south-west to Halswell, Templeton and West Melton. When Amy was asked what friends' reactions were when they announced they were moving to Rolleston, she replied:

*Most of them were quite excited because that means we're going to be closer to them. You know like, some would be like 'Oh, you and everybody else is moving out there' but the majority were like 'Great, cool, come on over, let's catch up'. They were like 'Finally—just get out here, everybody else is living out here!'*

Talking later in the interview about how she thinks about the need for travel associated with her residential location, Amy said:

*It's mainly about time and convenience I guess. Because like when we lived in North Beach, our other friends, like Alison and Marcus live in Halswell and it was just like 'Oh my gosh'—it's a long drive of time to go see them. And you know, I don't care how much it costs financially to get there, but it's more like just 'Ok we're leaving now, see you in 35 minutes... Whereas now it's like 'See you in 15' so it's more just the, yeah the convenience or time of getting there. Because I think like—you're gonna have to pay money to get where you—like petrol is inevitable. But yeah, for me it's more just like, especially now with kids, like 'Ok, how long do have to be in the car?'*

In general, shifting near family and friends were strong factors influencing locational choice and collectively appeared a far stronger attraction than work commute proximity. Because considerations around work commute were so heavily influenced by specific circumstances relating to work location dynamics and company car provision, this is discussed as part of the following chapter.

## Conclusion

This chapter covered key attractors as perceived by participants to the four study areas. These included attributes that have been found in overseas quantitative and qualitative literature, as well as other factors more difficult to capture quantitatively, like proximity to family and friends which played a significant role in location choice, and indeed more significant for most households than work proximity.

## Chapter 6: Transport as a factor in residential choice, and experience and intrinsic value of time spent in transit

### Introduction

The previous chapter focused broadly on residential choice and participants' key attractions to their current residential property and location. This chapter turns attention specifically to transport-related themes. It aims to address the latter three research objectives—namely; the influence transport considerations have on residential choice; how people conceptualise location, distance, accessibility and travel time; and how people experience their time spent in transit.

It begins by outlining some participants' general attitudes towards transport, vehicles and driving, and raises some key factors that strongly influenced commute-related decisions in ways largely neglected in research to date. Following a consideration of different ways people conceptualise transport in relation to residential location choice, we turn to the subjective experience of time in the car. The intrinsic value of time spent in transit is explored as a component of transport-related incentives, behaviour and decision-making.

### General attitudes to travel and household travel spending

In the course of interviews participants were asked questions aiming to elucidate general feelings around transport. Many seemed perplexed by these questions. Transport in general, and personal vehicle travel in particular, was widely considered simply a “fact of life”, something that people gave little critical thought to. Whether it was possible or even desirable to live without needing to travel far was not a question people seemed to have asked themselves—the need to travel was simply taken for granted. In line with the research findings of Green (1997, as cited in Lin, 2012, p.11) previous travel experience had a significant influence on what people consider to be an acceptable amount of daily movement. Nick's statement illustrates both these commonly-held attitudes, though he was unusual in including cycling and walking as key transport modes:

**Researcher:** *[When you were looking for a house] did you think about the transport issue at all, like the proximity to amenities, or...*

**Nick:** *No, didn't think about it at all. I guess Christchurch... you know, we've lived in various other cities around the world and so Christchurch is really compact compared to most cities.*



*So we kind of thought wherever we're going to be, it's always going to be a manageable, practical distance to bike, walk, drive... Yeah, we didn't really kind of think about Halswell being 'oh, that's 7 k's out of town, is that too far?' You know, we'd lived in Auckland before that, and Brisbane, so we were used to getting in the car and driving 45 minutes to visit friends on the other side of the city, so wherever we were, we weren't too worried where it was going to be because we knew we were always going to be 20 minutes' drive from things...*

Similarly, for a participant from the United Kingdom, both the time taken to travel from Rangiora, and the cost of petrol compared favourably with her previous experience:

**Researcher:** *And when you think of—[from what you said earlier] I guess petrol costs aren't a big factor when you're thinking about it, but is time...*

**Maria:** *I think it's different for people from the UK, because you're always going to have high petrol costs, and you're always going to have to travel for work if you've lived in the UK, so for us that's one of the things that I remember a lot of our Kiwi friends saying to us when we first came out here and moved to [our former suburb] Waimairi Beach they were like 'Ooo, that's a big commute' and we were like 'You know, it's quarter of an hour, it's really not.' You know, cos for us, we're used to travelling half an hour, 45 minutes anyway, because that's just what you do...*

Five participants who live in Rangiora and Rolleston who had grown up or previously lived in more rural or small town areas of New Zealand also considered their current commutes very reasonable, and not a detracting factor when they had been deciding where to live. In fact, some people value their commute so much that living in a satellite area like Rolleston was attractive for the driving time associated with its location, as discussed further below.

One of the questions asked in the questionnaire was How much would you estimate your household spends on vehicle travel per month, including petrol, registration, WOF, car maintenance and parking? Most people on reading this were baffled and four were so overwhelmed or had so little idea of how to begin the calculation that they left the question blank. Beyond the eventual figures that people estimated, it was often participants' reaction to the question that was particularly interesting. Their verbalised calculations were recorded and transcribed as part of the interview. While it is admittedly a difficult question that put people on the spot with (and arithmetic is not many people's natural forte) it was interesting to note recurring elements of participants' reactions. The following verbalised calculation is typical of many. The quote comes from a household which owns two cars, neither of which are company cars.

*So [my partner] would probably spend, petrol \$100 a week I would think—and registration and warrant, how would you work that out per month? You'd probably have to say about \$500 a month in total, wouldn't you?*

If the partner's petrol costs alone are \$100 per week, (and the costs for the second car were later in the interview estimated at \$35 in petrol per week) then clearly the total costs will be significantly higher than \$500 per month. This is just one example of five participants who in the course of their rough verbal calculations made significant errors of logic to come up with a total cost far lower than the reality. No data was gathered that would allow an accurate estimate of the true total cost of vehicle ownership and running for each participant household, but taking Mattingly and Morrissey's (2014) estimate of the monthly combined fixed and variable cost of a typical New Zealand vehicle costing \$501.58 as a generous baseline estimate (see Chapter 2, p.25) only six households of the 28 interviewed gave estimates that were likely to be realistic. Several participants, including those who had demonstrably underestimated their petrol spend made comments after doing the rough calculation like "Better if you don't think about it isn't it?" It seemed people were resistant to knowing the true cost of their vehicles and total transport-related expenditure.

The recent attention, both in academia and increasingly in the public domain, to combined housing and transport costs focuses on the trade-off between quotidian travel costs and housing costs (see Mattingly & Morrissey, 2014; Litman, 2015; Center for Neighbourhood Technology, 2010). For most households, in practice this would mean a trade-off between how much weekly expense was directed towards the mortgage, and how much towards vehicle costs. However, no household interviewed made any kind of conscious calculation of this nature. While some had given a little thought to the fact that moving to their current location would cost more in petrol and other vehicle running costs, none had gone so far as to do even rudimentary calculations, including Valerie who works in Christchurch city and reported spending over \$100 weekly on petrol:

**Researcher:** *To what extent did you think about the travel costs when deciding to move out to Rolleston? Was it a factor or was it...*

**Valerie:** *We knew that it was going to be, you know, quite high, because—but it was just, it was gonna be one of those things. It was just one of those things.*

This response typified the approach of many participants had not considered the household spend on petrol as a significant consideration in choosing their location.

Three participants have a set amount of money they spend weekly or fortnightly on topping up the petrol tank, and simply see how far they get on it. When petrol prices drop they tend to travel further, and when they are higher, they end up foregoing “that extra trip” when they see the petrol gauge low. For example, Laura explained:

*So Tim spends \$30 a week just to give you an idea. We tend to give ourselves a kind of a petrol budget, so I'll do \$25 a week and that'll get me fine anywhere I want to go. I find that if Tim goes and actually puts \$50 in the truck, I tend to go out more. I'm kinda like, 'Well, there's still a quarter of a tank left so I'll just go somewhere else,' whereas I think I'm very budget driven so I kind of think if I keep to what I do then my days are—you know we still get to do lots of stuff but I just think if I had more petrol to use, I'd use it.*

When asked about whether the price of petrol affected how she felt about driving, Amy from Rolleston replied:

*Yeah, I did notice the other day when it dropped I was like 'Oh, bonus!' but like, because I don't drive that much, I spend \$60 regardless because—it depends on how full my tank is, as opposed to like—I don't always fill it up full. I'm like 'Cool, I'll see how much \$60 gets this time'. Sometimes it's half, sometimes it's three quarters.*

For many participants, vehicle expenditure is simply considered a fact of life that is rarely questioned. The findings from the interviews and questionnaires support the Center for Neighbourhood Technology's (2010) finding that households are generally not consciously aware of the true total cost of their household transport, particularly as the costs of vehicle ownership and running are so disaggregated. Some participants' realisation of the true weekly cost of the extra travel is touched on further below.

## The work commute in relation to residential location choice

The work commute was a consideration for many households when weighing up their residential location, but in sometimes unexpected ways. This section explores how distance, travel experience, travel duration and speed were taken into consideration. It also raises two factors that are often neglected by the research but that significantly changed the incentives faced by households in considering commute and residential location, namely access to company cars, and variable work location.

A large proportion of households interviewed had one or both partners working in roles without a standard commute. Of the 28 households interviewed, six households had one or both breadwinners in a profession with no fixed location, such as tradespeople working in the rebuild. A further four households had a primary breadwinner who works from home. This means that for a full third of participant households, considerations around work commute were naturally a far weaker factor in locational decision. Most of those working in Christchurch's booming construction sector commented that they would often have to travel long distances to work, regardless of their residential location, because their worksite could be in any part of Christchurch City, greater Christchurch and as far away as Ashburton, 90 kilometres to the south. Five of the six participants in the engineering and construction sector have a company vehicle, and reported that they felt no or little incentive to minimise driving distance.

Access to company cars was not restricted to those in the construction sector. Almost half of all participating households had access to at least one company car. It was evident from many comments that having a company car has the potential to significantly alter the locational decisions and transport behaviour of households. Statistics cited in Chapter 3 revealed high levels of access to company cars in Selwyn and Waimakariri districts (20 percent), and access to company car in the sample was very high, as shown in Table 7 below. The sample of households in Halswell had even higher rates of company car access than Rolleston. In the study site furthest away from Christchurch city, Rangiora, 71 percent of participant households had a company car. No academic research reviewed for this thesis took the altered incentives associated with company car access into account, whether in terms of initial residential choice, or in terms of travel behaviour post-shift. In the Christchurch context in particular, with the high rate of company car access, ignoring their impact on travel behaviour and related incentives would be a substantial oversight.

**Table 7: Company car access among participant households**

Study site	Number participant households	Number of participant households with at least 1 company car	% of participant households with at least 1 company car
Linden Grove	5	1	20%
Halswell	9	4	44%
Rolleston	7	3	42%
Rangiora	7	5	71%

Five participants overtly stated that access to a company car influenced their locational decision because they do not bear the cost of the extra commute distance in the household budget. The exchange with Lori and Tom from Rangiora is typical of several interviews:

**Researcher:** *So what are the main things you're thinking of [in terms of driving cost]?*

**Tom:** *Time, and cost, yeah. For Lori's car.*

**Researcher:** *Right, because you're not paying for your car Tom?*

**Tom:** *Petrol yeah, and to be able to just—having the work vehicle was part of the reason as well, because if we'd been having two cars going into town we probably would have thought, hmmm, maybe not.*

**Researcher:** *You might have looked more closely at the cost?*

**Tom:** *Yeah.*

**Lori:** *Yeah.*

**Tom:** *So that was probably \$70, \$80 a week diesel and road users [for my work truck], so yeah we probably would have thought twice.*

Similarly, Liz and Robert from Halswell who work in Christchurch City stated that they would not have considered Lincoln, a town approximately 10 kilometres south of Christchurch City's boundary had they not had a company car:

**Researcher:** *Do you think your considerations would have been different if you hadn't had a work car at all in terms of choosing to live here?*

**Liz:** *No.*

**Robert:** *Not a whole lot different I don't think.*

**Liz:** *I don't think any different.*

**Robert:** *Although—well we wouldn't have looked at Lincoln at all.*

**Liz:** *No.*

**Researcher:** *You wouldn't have looked at Lincoln at all?*

**Robert:** *Probably not.*

**Liz:** *We would have had to have thought that one through. But yeah, no.*

**Robert:** *It would have been far more of a consideration...*

**Researcher:** *[looking through questionnaire responses] Petrol prices would have pretty much no impact on your household?*

**Liz:** *No, no impact at all. Wouldn't even know what the price is!*

Even among participants who do not have a company car, few had considered the financial implications of driving in choosing their location. For many it was something they adjusted to by changing their activities and habits once they had moved, as discussed in greater detail below. A minority of participants had consciously considered the additional outgoings on petrol that a more peripheral location would entail. In the case of Dawn, one of the most budget-conscious people interviewed, this consideration was outweighed by the more pressing priorities. Dawn was cognisant that they would have to spend more, but after shifting out to Rangiora they had to increase their petrol budget by even more than anticipated, and necessary adjustments to the household budget and family activities were made after the move to offset the cost.

**Researcher:** *To what extent did you think about the travel costs when deciding to live out here? Like are your travel costs more out here than they were in Christchurch or is it actually—*

**Dawn:** *Because I'm a budgeter, it's—[but] I don't think it came into the thought of buying the house too much, it was more time.*

**Researcher:** *Right, so when you thought about travel it was the time element?*

**Dawn:** *Yeah, so we, I think we knew that it would cost more, because of course it's going to cost more in petrol. But we were so desperate that we would change whatever we needed to change. If my daughter needed to stop ballet lessons, we think our lifestyle as a family would be better here than in [the city] regardless of cost of petrol. So we knew that [our petrol budget] would go up, but we were still shocked when we realised it needed to go up more.*

**Researcher:** *How much more do you spend here than...?*

**Dawn:** *So [when we were living in Christchurch City] we basically budgeted \$40 per car for petrol a week. But in the end when we came out here, \$120 is the minimum that we need to spend.*

**Researcher:** *Ok, so it's an extra \$40 a week from your former weekly baseline budget [across both cars]?*

**Dawn:** *Yep.*

Three households in Rangiora and Rolleston got a company car only after moving, and all three noted that household finances would be more difficult to manage in its absence. Dana and Adam's reflections follow:

**Researcher:** Did you think about the travel cost issue at all, or was travelling more, did that not figure in?

**Adam:** Well yeah we did, but then I get a [company] car and petrol's paid.

**Researcher:** And you knew that at the time that you bought the house?

**Adam:** No.

**Researcher:** So that's kind of a bonus now?

**Adam:** It was bonus after a couple of months when I realised we were actually going to get the [work] van.

**Researcher:** Ok.

**Dana:** Petrol cost was draining us, it definitely was draining us early on, until you got that van and then that was a lifesaver actually. It would be tough if we had to do your petrol every day wouldn't it?

**Researcher:** How much would you be spending in the work van going from here to work and back every week do you reckon?

**Adam:** \$70. And that's doing some other trips in and around town as well.

**Researcher:** Right so that includes all the travel for the van, \$70 a week.

Dana's reflection that the petrol costs were putting a strain on the household budget again highlights that locational decisions are not always rational or financial implications dispassionately calculated, and that households who purchase houses in peripheral locations may only realise later, supporting the Center for Neighborhood Technology's suggestion that households are unaware of the true total costs of vehicle ownership and running.

The guidelines for acceptable use of company cars differed between participants. Some companies were reported to allow unlimited personal or family use of the vehicle, while three participants had guidelines such as "reasonable use" which the relevant participant interpreted as using it around town being acceptable, but not taking it on family holidays for example. One participant who lives in Halswell, and whose three different work locations are all in Christchurch City was given the guideline by her employer of not living further out from the city than Halswell in order to limit mileage on the company car. Participants whose company cars are permitted to be used for family purposes tended to shift as much of their family travel as possible to the work car, and emphasised the freedom it gave them to make trips that they would otherwise think twice about making.

## The commute and the significance of the driving experience

Rather than simply viewed through lenses of *duration* and *distance* that are kept in the foreground of much of the quantitative literature, the *experience* of driving, and the predictability and smoothness of travel were key factors influencing how people weighed up travel implications of residential location. Even for those without company cars, the financial burden of a long commute was mentioned far less frequently than *journey duration* and *ease of driving* as related to traffic conditions, road capacity, speed limits, roadworks, intersections and traffic signals. Because of this the road types and traffic conditions between home and work were for most participants higher considerations than simply distance, as explained by Edward from Rolleston who works in a south-western suburb of Christchurch:

*And look, to be fair you're 12 ks out of Christchurch, that's nothing. It's ten minutes to Hornby. You know, when you compare that to... case in point when I was studying and I was coming from Hororata, I'd have people telling me 'you're an idiot coming that far' and it took me 35 minutes to come to uni. And I'd say 'Then where are you coming from, Sumner? How long does that take? 45 minutes? So what are you talking about? Just cos you live in town doesn't mean it's any quicker'. Getting through town is horrific. So you know, Rolleston's actually quite nice, and it's got so many easy accesses into town as well, you can go via Halswell, you can go over by the airport, you can sort of get in that way, you can get in the normal way via Main South Road, Yaldhurst Road that sort of way. There's a lot of ways to get in.*

Edward went on to highlight the contrast between commuting to Christchurch City from Rolleston and Rangiora, saying:

*I was actually talking to somebody today you know, there's no plans [to address the peak-hour traffic issues north of Christchurch City towards Rangiora]. So it's just a nightmare. So if we ever do end up in Pegasus I'd get a job out that way, work in Rangiora because it's just illogical to be based in town and live in North Canterbury at this stage because of that drive. Whereas to live in Rolleston, to live in Halswell, to live in Lincoln, Springston, you've got so many easy ways to get to town that just flow.*

Edward was one of two participants who found the type of commute to their current location an attraction, because they experienced as far more enjoyable than previous commutes through built up areas of Christchurch. Edward has tried many different routes from his home to work, including timing them at peak and non-peak hours to determine the best route for him.



In contrast, three Rangiora residents emphasised the unpleasantness of their or their partner's commute, with Holly commenting:

*Transport-wise on peak hour traffic is crap though, that's the only downfall of being north, is that the traffic is just crap, getting into town for work... Yeah overall he hates driving to work, hates the busyness.*

Their house in Rangiora is for them primarily a way to move up the property ladder, so Holly's husband sacrifices his long unpleasant commute for long term property goals.

Tom's route to work from Rangiora takes 30 to 35 minutes in low traffic conditions, but around 50 minutes during the morning and late-afternoon peaks he often gets stuck in. He tries to 'sneak off' at about 4.30 in order to avoid the worst of the traffic congestion.

**Researcher:** *Just imagine there's no other constraints whatsoever and you could choose your ideal commute time from house door to work door, how many minutes would you make that trip?*

**Tom:** *I'd say probably 25, just a wee bit longer, just to relax, try and relax. Unwind from work before getting home... [And] that's the difference of getting away earlier, you can relax on the drive home. But if you get away at 5 o'clock you can't relax because you're in first gear, second gear. And you're not unwinding at all, so you can't listen to music type thing, you can't—because you're concentrating on what's happening around you which I guess you should be doing, but yeah.*

Tom's comments regarding the inability to relax and unwind when stuck in traffic were echoed by two other Rangiora residents. For those participants who reported driving as stressful, this was generally related to congested traffic conditions rather than travel duration, which highlights the value of taking this variable into account when conducting research on the pernicious psychological health effects of commuting. Several households did factor in the work commute in line with assumptions of much of the quantitative literature—that is, they tried to minimise commute duration and distance. Five participating households explicitly mentioned proximity to work as a central factor in their housing search.

There were several participants who had considered moving to one of the other three study sites, but had decided against it for transport-related considerations. Again, the concern was not usually about the financial cost, but about the enjoyment of the trip and the desire to avoid traffic congestion and other impediments to a smooth journey. For two participants in Linden Grove, it was

the added factor of the traffic congestion in the morning that put them off living in Halswell which they had considered before purchasing their houses. James explained:

**Researcher:** *Do you drive to work?*

**James:** *I do, every day*

**Researcher:** *How long does that take?*

**James:** *10 minutes, door to door. And that's going against the traffic and you know, I see all the Halswell people queued up along Halswell Road, even at 8 o'clock in the morning and yeah, I'm so thankful that I don't have to sit in that. Because we did consider getting into Aidanfield [subdivision in Halswell].*

**Researcher:** *Oh really, and why did you decide that that wasn't...*

**James:** *It was just that little bit further out. That was the main consideration. Just—it's not much, it's only minutes but...*

**Researcher:** *Is it the time factor that you thought about when you think about it being further out, or the traffic, or the petrol...*

**James:** *Just the traffic. Yeah.*

Similarly, Liz and Robert in Halswell said:

**Liz:** *There's reasons that we didn't go for the likes of Rolleston, that didn't excite us at all, that drive, we didn't want to do—it was never an option.*

**Researcher:** *Ok, so you thought about it but didn't...*

**Robert:** *We sort of thought about it, but at the crucial time we were travelling south to Dunedin and we went through Hornby, Templeton on the way out to Rolly [Rolleston], and it just seems to take ages and we thought 'Bugger that'. Yeah.*

**Liz:** *Yeah, it's an unenjoyable drive and it wasn't worth the savings for that.*

**Researcher:** *Yeah, what would they savings have been? Do you have any...*

**Liz:** *You're saving a good \$50,000 aye, on your house price. From the ones I saw in the [real estate magazine].*

**Robert:** *At least 50, if not a bit more so...*

Robert and Liz have a company car so there are no direct financial implications of their commute, but rather the unappealing experience and duration of the drive were the key disincentives.

Some participants revealed some of the compromises and trade-offs made within their household that were part of their residential location decision. For Nicole in Halswell, there was a negotiation between the proximity of their new home to her husband's work and her work respectively. When asked about whether work commute was considered as part of their locational decision, Nicole explained:

*Yeah, that was quite a factor because Malcolm wanted to be close to work so it didn't take him too long to get there, and at the time I was working at Burwood and I was like 'What, so I'm gonna be the one who has to drive?' but we thought, long term, if this is where we're going to set up our family, it's more likely that he will [continue working], so it's better to be close to his.*

For several participating households, there was a conscious trade-off between the accessibility of amenities for the children and the stay-at-home parent, and the breadwinner's travel needs. For example, Dawn's family consciously traded off her husband's longer work commute for other considerations of family life, for example a nicer house. Dawn talked about the trade-off:

*Having the family life, having the home where you want to go home to, you can kind of—if we can have a better lifestyle, including time with the kids, if the time with the children and as a family is more catered to our personalities and our strengths and what we value, then just a wee bit of [extra commute] time is worth it.*

Kristen's household lives very close to her husband's work in Rolleston. However, the family with teenagers is finding that many of the activities they want to be involved in are located in Christchurch City, with at least one trip, and occasionally up to three return trips per day into the Upper Riccarton area (around 17 kilometres from Rolleston). They are therefore planning to shift into the city, because the travel required by the rest of the household is outweighing the advantages of the husband's proximity to work.

**Researcher:** *So how will transport be better if you move into Christchurch?*

**Kristen:** *It'll save time. A huge amount of time. And probably a bit in petrol, cos [my husband] is still gonna commute, but he's only going there and coming back [once a day] and that's it.*

These comments illustrate the gap in the literature, given how much of the research on household vehicle travel focuses on the work commute (see Chapter 2). The burden of a regular, predictable commute journey, once a day, was traded off by several households in favour of increased ease of juggling the complex transport logistics that are so often part and parcel of family life. These are just three of many examples of intra-household negotiations that fed into locational decisions, when the "black box" (Mok, 2006) of household travel was opened to scrutiny.

For at least three households, their residential location chosen meant that the *distance* that the main breadwinner travelled to work increased markedly, but the travel *duration* fell, or stayed the same. Often the commuter found that the work journey became more enjoyable because of the

type of driving involved, like motorway or rural driving. For example, for Amy's husband in Rolleston, the trip to work became a lot shorter in *duration* after they moved from North Beach in Christchurch's east, even though the *distance* increased from 13 kilometres to 20.

**Researcher:** *And the fact that your husband would be commuting into town, was that something you thought about?*

**Amy:** *No, it probably wasn't because living in North Beach and him commuting into town wasn't, it was probably 30 minutes, so [from Rolleston] he was taking the back motorway and that was only taking, from here to Riccarton, 15, 20 minutes.*

**Researcher:** *So he actually saved on commute time from where you were?*

**Amy:** *Yep.*

For most participants, the experience of driving at high speeds in highway-like conditions or at least flowing traffic conditions was strongly preferred over driving through more congested parts of Christchurch or areas where driving is punctuated by traffic signals and intersections, as implied by Edward previously on page 104. For a Rangiora household where the main breadwinner's work shifts start at 3am and ends mid-afternoon before the afternoon traffic peak begins, Dawn explains:

*When we lived in Wainoni, [my husband's commute] was basically 20 minutes because he works at 3 o'clock in the morning and he's home around midday, so it was 20 minutes even then. So now it's a further distance, but it's still 20 minutes.*

The distance from Dawn's former location was less than half the current commute distance at 13 kilometres compared with 27 kilometres.

The extent to which the work commute was factored into their residential choice by households was strongly influenced by factors like not having a standard work commute, working from home, having a company car or have working hours that mean people can avoid driving at peak times. As explored above, for many households proximity to child-related amenities and services, as well as social relationships and the convenience of having their friends and family nearby, had a far greater influence on their location choice than commuting.

## The primacy of home and post-shift adaptation with regards to travel behaviour

Many households, especially those for whom travel implications of location had been only a minor consideration, had adaptive strategies to minimise their need for travel or adopted other approaches to minimise their travel time and cost after shifting. For many, their home is a primary anchor in their lives around which elements of daily life are adjusted to fit.

A high proportion of participants moved to their current house either as part of the process of shifting to Christchurch from elsewhere, or as part of a significant change in life situation, such as having their first child. Ten of the 28 participant households fitted this situation. For these households in particular there was a theme of building a new lifestyle around their area of residence.

Several mothers described filtering their children's extra-curricular activities according to their travel implications. In an exchange about the amount of driving per week associated with her children's activities, April said:

*Yeah so there's cricket down at Halswell, there's touch down at the school and then there's dancing over at Oaklands so it's not far. It's all close. Which is on purpose.*

**Researcher:** Right, very thought through?

**April:** Yeah, I didn't want to let Emma do dance on the other side of town, or, you know there was that...

**Researcher:** So it was all conscious in terms of where you chose to...

**April:** Yeah, so 'That's easy, that's just over there [in the neighbouring suburb]', or 'That's fine'—yep.

**Researcher:** Oh cool, and what were the key considerations in minimising that travel?

**April:** Mmm, time, and time of day.

**Researcher:** Is much of it, would [those activities] be in peak hours?

**April:** Yeah, 4.30 to 5.30 yeah.

Similarly, for four parents who had gone back to work part time as their children grew older, the geographical location of jobs they applied for was determined by their residential location. Time rather than money spent on petrol were greater factors for these participants, especially because of the high cost of childcare while they were at work. A typical exchange with Lori and Tom in Rangiora follows:

**Researcher:** And you work in Casebrook Lori?

**Lori:** Just after Northwood if you're driving into town.

**Researcher:** So quite handy?

**Lori:** Yep, and I only applied for jobs when I was looking for a part time job on that side of town really. And I still do keep my eye out, out here [in Rangiora].

**Researcher:** Is that to save on that travel time or cost or...

**Tom:** As much as anything it's time isn't it?

**Lori:** Yeah, when you're doing a part-time job and you don't get paid huge money, the cost of petrol going in and out, if I got [a job] out here even if it was on a dollar or \$2 an hour less, you know to balance out... Because it's not just the petrol, it's the preschool fees you see.

Some participants had some influence in determining where they would work in order to minimise travel, for example Laura of Halswell, whose husband is a builder, recalled:

*So my husband's currently working on a place in Merivale, and that's the current project, he's usually round the Merivale area. There was a point where he was going to have to work in Sumner and then he ended up threatening to leave because he wants to spend as much time as he can with the kids, not interested in working, in taking long drives using his own petrol. He's not a foreman yet using a company car.*

Adam in Rangiora—where peak-morning traffic is bad—is a manager, and after moving to Rangiora he changed his organisation's standard office hours and implemented flexi-time in consultation with his staff in order to enable them all to avoid peak-time traffic.

For these households, the residential location was the foundation around which other parts of life were arranged. Residential location came first. When asked what the impacts of petrol price rises would be on his household, Edward from Rolleston, who works in the south west of Christchurch City replied:

*I think the only impact it would have, petrol, is me changing job, as in moving from a town school to finding work in Rolleston, or in a close-by area. I think that would be the only change. My wife, most of her work is from home, she works from home on the internet, so it would be more me just changing job rather than buying closer to town.*

Nicole in Halswell had a similar reaction:

**Researcher:** Oh yep, so [you indicated on the questionnaire that] you'd worry a little about impact on household budgets if petrol prices go up—

**Nicole:** It would just cut down on what we would do outside of Halswell.

**Researcher:** So things would be done closer to home, you'd try and restrict that?

**Nicole:** Yeah, yeah. Go a bit more local, so you know, it didn't cost so much to drive there.

Holly in Rangiora who is currently a full time parent took into account when deciding to move to Rangiora that her particular profession means she has a very good chance of finding work there once she decides to return to paid employment. Like many other participants in Rangiora and Rolleston, her husband has a company vehicle so petrol costs are a minor item on the household budget.

### Efficient household transport planning

Another approach to minimise necessary travel, mentioned particularly frequently in Rolleston and Rangiora, was saving up a list of jobs before making a trip into Christchurch City. Unsurprisingly, households with two full-time earners were more likely to emphasise the time savings of this approach, whereas those with a stay-at-home or part-time working parent more often cited the financial savings. Valerie in Rolleston explained her approach which was typical of many in Rangiora and Rolleston:

*That's like with me, I try and plan, like I said if I go to Hornby to do all my shopping, I plan like I need to go to the post shop, I've gotta do this, I need to go to The Warehouse—I try to plan it all around...*

**Researcher:** *Tick it all off at the same time in one trip?*

**Valerie:** *Yeah try and fit it all in, like during the weekend, if we're like 'Oh we really need...' I'm like 'Oh what else can we do when we're there?' or 'That's really annoying, you know, it's an extra trip'*

**Researcher:** *So there's quite a lot of planning that goes into it to make it really efficient?*

**Valerie:** *Yeah, you're getting the most out of your petrol especially.*

Victoria, who is raising her children single-handedly, reflected on the contrast in attitudes towards driving into the city that she had noticed between herself, her new partner and a friend of hers who also lives in Rolleston:

*I have a friend in Rolly [Rolleston] who runs her kids everywhere, and she'll just—I'll say 'So what have you done today?' and she'll say 'Oh I've just popped into [Christchurch city]. And I'll go 'What did you go to town for?' 'Oh, just for a coffee' whereas I'm like 'Petrol, oh my god?' So I don't know, if it's just I'm tight or I don't know, so it's quite an interesting—different people's thoughts on travel and time and all that sort of thing... And I just find it's all those short trips that clock up my petrol, cos I can go so much further obviously on a long trip. Like I say I try not to do a trip to Hornby just for one thing. It'll have to wait!*

Tom and Lori in Rangiora talked about how the company car affects their travel behaviour:

**Researcher:** And would petrol price rises have any impact on what it's like to live out here?

**Lori:** It does for me I think more psychologically. Even now I'm very—I don't flippantly really go into town very much do I? So yeah.

**Researcher:** Because of the cost element?

**Lori:** Yeah, yep. So I guess, I guess we'd still do it, I guess we're in the position we can afford to run the car so we do, don't we?

**Tom:** Mmm.

**Researcher:** Would that change if you got a four-door [company car that you could fit the whole family into, as raised earlier in the interview]?

**Tom:** Yeah yeah, yes it would. Because then we'd probably head into town a wee bit more regularly.

**Lori:** Yeah we would I think. Cos I'm a bit stingy. I am—well, yeah.

**Tom:** I mean we do go in but we don't...

**Lori:** We don't go in and out.

**Tom:** We'd go on a whim as opposed to planning the day, so yeah.

**Lori:** And again if you were to lose your [work] car for some reason [sharp intake of breath].

**Tom:** Yeah, we'd have to think about things, it would become a factor wouldn't it, if I was driving in five days a week and paying for it.

It was interesting to note that even for households for whom petrol cost had not been a conscious factor in household relocation, financial costs of driving did have an impact on their subsequent behaviour. Four reported making efforts to walk or bike to local destinations with the primary or secondary reason being to save money on petrol.

## Online shopping

Three participants mentioned using online shopping services, one solely for groceries and the other two for both groceries and household items and gifts. The convenience of this was highly valued, especially for mothers juggling several children, activities, nap schedules and so forth. Laura's comment sums up the attraction:

**Laura:** These days I don't go grocery shopping, I do it online... [And] even things like getting birthday presents and buying things is all online.

**Researcher:** That's cool.

**Laura:** I know! I would do it forever. So I don't actually go to the mall much, especially one of the key things is that [the kids are] just really naughty. It's all delivered. You pay a little bit more in delivery, like \$5 or \$10 for deliveries, but if I work out that petrol will be the same price and I'm going to have no dramas doing it, and I won't impulse buy when I get there, then it's really worth my while.



The possibility of procuring consumer goods, including groceries, online makes location and physical proximity to some amenities less relevant in selecting residential location. This is especially the case when the advantages of online shopping are multiple, such as being able to avoid a trip with uncooperative children, and avoiding expensive impulse purchases.

## The experience of driving, and the value of time in the car

The preceding sections discussed the extent to which participants considered the financial, time and other costs of the travel implications of their residential location, as well as post-move adaptive behaviours demonstrated. While the influence of factors such as traffic flow and congestion on travel behaviour and decisions were touched on previously, this section includes a more detailed assessment of these. The latter half of this section will then explore the desire for travel time and the value that people derive from their time in transit.

As the discussion so far has revealed, travel burden or cost is construed to a large extent through duration and subjective experience of the trip, which is itself highly influenced by the contextual driving and road conditions. In relation to work commute, it was these elements that seemed to have a stronger influence on decisions related to vehicle travel than the financial cost or distance. In contrast, stay-at-home parents, particularly those in households on single or lower incomes were more likely to take financial cost into account in relation to frequency and distance driven post-move.

Qualitative research seeking to understand the subjective experience of driving has found that many enjoy the act of driving, especially aspects such as mastery, control, speed, and independence (Edensor, 2011; Lupton, 1999; Mokhtarian & Salomon, 2001). These components of driving experience are thwarted by congestion and common impediments of urban driving such as traffic signals and intersections—a factor less canvassed by research to date.

Most participants had generally positive views of driving. Eighteen reported enjoying driving, four participants “didn’t mind” driving, and four say they “love it”. The rest of the participants had ambiguous responses to questions around whether they generally enjoy driving. Participants generally expressed deep frustration at driving in congested conditions, and through areas with

frequent traffic lights and intersections. Other unexpected or temporary impediments such as roadworks also featured on the list of frustration factors. This may go to the fact that feelings of mastery and control frequently mentioned in the literature as core to the enjoyment of driving are thwarted in such conditions. Valerie from Rolleston talked about how she feels about driving in congested conditions:

*I get annoyed with other drivers. Bad drivers, at least with—you know when you have roundabouts and lights and things, I just get annoyed with people that don't read the traffic and that kind of thing, whereas if you're on a straight fast road, there's nothing for anybody else to—no stop signs, you just go! Yeah less full on possum in the headlights wondering what person's going to make some dumb mistake and take off because they think they can fit through a gap and those kind of things. That's why I don't mind my commute because a lot of it is 100ks... If I had to go from say Cashmere to Belfast through town, I would just die. That would drive me nuts.*

John and Andrea's exchange was interesting. John generally enjoys driving, finding it 'peaceful', but found their former commute to Christchurch Polytechnic (CPIT) in the Central City unenjoyable:

**John:** *I actually did not enjoy—I never used to enjoy my driving to CPIT. It would just give me, it was just a little hectic every morning, to find a park and then they would have those cordoned-off areas.*

**Andrea:** *The cones, the road cones, and it was different every day.*

**John:** *Different every day. And you don't have a pre-warning and you're like 'Oh, oh, what the hell, I entered the wrong street' or whatever. And I don't like that, when I'm focused on something I'd like it just to be easy.*

**Andrea:** *And predictable.*

**John:** *Exactly, and it would not be so. I did not enjoy that.*

Kimberley in Halswell had similar frustrations, having talked a lot earlier in the interview about the constant roadworks in her area:

*We're always rushing somewhere! Like 'Help! How long does it take to get there?' Mm, it's ridiculous isn't it?*

**Researcher:** *Yeah, and like you mentioned, there's a lot of roadworks around here.*

**Kimberley:** *Yes! Always, always. I still forget to put in extra time, you know —like I should know this! Come on! Just plan ahead! So frustrating.*

In contrast the two interviewees who were least bothered by driving in heavy traffic and urban areas talked about the conscious decision they make to leave early to allow for traffic. This might perhaps

be interpreted as a strategy to wrest back control over a situation that might otherwise leave drivers feeling powerless and frustrated. Kate from Linden Grove mused:

*Peak hour it isn't as enjoyable especially as you're waiting and the light's changing and you know, you're stuck there. But it's just one of those things, you just have to allow time. That's one thing that I've gotten really good at is making sure I allow time, especially seeing as I zip and zap everywhere. You really have to, yeah.*

The sensation of *movement* is a key component of driving pleasure raised in the literature (Edensor, 2011; Lupton, 1999; Miller, 2001; Shaw & Docherty, 2014), and indeed interviews found that a sense of continued movement was highly valued by participants. When talking about their experience driving, people valued a more positive subjective *experience* of their time spent in the car as more important than minimising the *amount* of time spent. This theme became apparent around two thirds of the way through the research, so a question was added for the subsequent interviews asking whether, hypothetically, when travelling to a regular destination, people would prefer to spend 25 minutes travelling on the open road, or spend 15 minutes getting there in traffic congestion. Of the eight participants asked this question, all but one chose the option of longer driving time in more flowing traffic conditions. The enjoyment of the sense of movement, and frustration at its interruption, was mentioned by several participants. Kimberly expressed it well:

**Researcher:** *Does that make much of a difference to your driving experience, whether you're in traffic or whether it's free flowing, or open road or—*

**Kimberley:** *I get frustrated. I know I—yeah, I'm not good with that kind of stuff. Patience isn't my top virtue. But yeah, I do get annoyed. It's not so cool is it? So it does make a difference. Even if it took you the same amount of time but you were moving, then you do feel more positive about it.*

In fact, three participants reported regularly taking a route that is a greater distance (and in one case is also longer in duration), purely because they prefer the continuous movement. For example, an exchange with Adam in Rangiora:

**Researcher:** *In terms of your experience of that time in the car, does it make a difference whether you're in free flowing traffic or whether it's backed up?*

**Adam:** *I like it free flowing. I feel better. I've got a little route, I just duck through Kaiapoi and go out into the country and go that way. It's a bit longer but I actually get back here quicker probably, and I don't have to stop, slow down.*

**Researcher:** *What is it about the—when it is a bit more clogged up, that you dislike?*

**Adam:** *I just like movement. I've actually realised—I do a different route home than Dana*

*does, and my route's probably longer but I don't stop.*

**Researcher:** *Right, and when you say 'stop' do you mean at intersections, or stuck in traffic, or —*

**Adam:** *No, stopped at intersections—I go through roundabouts. Just so that I keep moving. As long as I'm moving I'm reasonably chill.*

**Researcher:** *So if you could choose between 15 minutes in the car to work in kind of semi-congestion, and 25 moving, which would you choose?*

**Adam:** *Moving.*

Several participants made similar comments like “it's the stop start that's really annoying”.

Quantitative research such as that of Noland (2001) has found that motorway construction increases distance travelled. The interview findings here indicate that motorway provision may encourage extra vehicle travel not only by decreasing the *duration* of trips by increasing travel speeds, but also by rendering the journey less interrupted and therefore more enjoyable.

## Desire for travel time

Two questions in the interview asked directly about desired travel time. One asked how many minutes people would spend commuting in their ideal world (after Redmond & Mokhtarian, 2001), and the other asked whether people would take the hypothetical option of teleporting to their destinations, after Mokhtarian and Salomon (2001). In general, the reaction to the option of teleporting was quite negative and only three participants said that they would take up such an option. These three participants were all mothers who undertake the bulk of work in the home and child-raising, and who commented that the time saved on driving would allow them more time to do household chores. Several participants commented that teleporting would mean you would miss out on observing things on the way, like Sarah whose reaction was reflective of many:

**Researcher:** *If you had the option of everything being in the same location but teleporting just like [snaps fingers] and you're at the new location, would you take that option?*

**Sarah:** *I don't know, I don't think I would actually. Because then I think you miss out on other things on the way.*

Several others valued the psychological distance from work that their commute affords them (similar to the findings of Jain & Lyons (2008) which highlighted the importance of experiencing the physical crossing of distance to achieve a psychological distance from the place of work). The most common reason given for turning down the option of teleporting was the opportunity for psychological

transition time during the journey (see Mokhtarian & Salomon, 2001; Redmond & Mokhtarian, 2001, Edensor, 2001).

Given the option to name how many minutes people would choose to commute in an ideal world, and in the absence of any real-world constraints, the great majority of participants chose times of between 10 and 20 minutes—similar to the research by Redmond and Mokhtarian (2001) which found the averaged time desired was 16 minutes. Again, mothers with (usually low-stress) part-time jobs and who bore the bulk of household and child-raising responsibility were more likely to choose short commute times in order to free up time for the myriad tasks that awaited them at home. In a similar vein, two full-time employed fathers said they enjoy their time commuting but wouldn't make it longer because it encroaches on time to see their children. For example, Nick in Halswell who cycles to work:

*Yeah, so I think my commute time now [20 minutes], it's probably about right. Like I'd like to make it longer, but I wouldn't like to make it longer in that I would sacrificing something, and that would be home time. Because obviously I've gotta work as much as I work, so it would only be taking time out of seeing the boys. And they go to bed at say 7, 7.30 and so I'm getting home after work, and a bit of time in the morning is the only time I get to see them. So it's a bit of a trade-off, and if it was anything less than what I do, then I'd be grumpy and I'd be wanting to ride my bike more, so I don't think I'd move it either way.*

Only three participants conveyed that time spent travelling in the car or by other modes of transport was purely a cost, a means to an end. That is to say, almost all found some positive value in their time spent travelling. The range of positive uses of the time spent in the car were varied and interesting.

### Time in the car as relational time

Time in the car with others holds great value for many participants. Parents of school-age children reported the importance of 'touching base' with their children on the way to school, and the enjoyment of more in-depth conversations on longer trips than they might otherwise have the opportunity for. When questioned why they thought time in the car was so conducive to quality interactions with their children, participants mentioned elements including the fact that it was relatively uninterrupted by other necessary tasks, the predictability of the length of time of the

journey, the lack of distraction of iPads, computers, television and other technologies—both parents and children are a captive audience to each other—all findings raised in previous research such as Merriman (2012) Laurier et al. (2008), and Taylor & Swan (2005). Some parents of primary-age children reported having some of their best conversations with their children in the car, like Adam who said:

*My son [10 years old] can ask you massively complex questions, about the meaning of life and always when you're unawares—you know we try and answer the questions. You know, kids have questions and it's important—*

When asked whether they would teleport, several participants declined because of the value of the time in the car with their children. The trip dropping off children at school was valued as a time to talk about what the coming day held, and what was happening after school, and trips home were a chance to debrief what had happened during the school day.

**Researcher:** *Would you say time in the car with you boys is quality time? Sometimes, all of the time, never...?*

**Monica:** *Yeah, because obviously on the way home from school and other things we're talking the whole time and that is nice because they don't have any other distraction I guess. And in the mornings we're talking about what's happening after school or what's happening at school or—yeah I guess it is [quality time]. And I guess they're not thinking about the fact that you're sitting down having a talk, because there's nothing else to do, you can't get up and move away or go and play, or...*

**Researcher:** *Do you think—if you had the option to be teleported to places, and zapped to school to drop your children off, would you take the opportunity to teleport?*

**Monica:** *I don't think so, no. You'd miss out on what's going on around the world. I mean just driving you see things, see what's going on around the neighbourhood and see people. Yeah no, and the talking time I guess is really important.*

Other mentioned uses of time in the car included playing maths games suggested by her child's teacher to improve her maths.

For families with teenagers also, time in the car was seen as very valuable. A mother of two teenage sons in Rolleston commented that car time was a good opportunity to talk to them:

**Kristen:** *If I pick the boys up from in school or whatever, we get that time. Boys talk better when they don't have to look at you as well... Yeah, you hear a lot more and the conversation flows a lot more and you've got music going in the car and it's not so intense. It's quite good*

**Researcher:** *Do you think you'll miss that time if there's less of it, if you're travelling shorter*

*distances when you move into Christchurch [as planned]?*

**Kristen:** *Um, I don't think I'll miss it, but I will have to make more effort to make sure it sort of happens at other times. It'll be something that I've gotta be conscious of.*

Kate in Linden Grove, values her time in the car with her children very much, and is worth quoting at length. Her musings closely reflect some of the key findings of Laurier et al. (2008) and Merriman (2012) relating to the spatial arrangements of the car, the fixity of available time, and lack of eye contact as elements conducive to valuable social interactions in the car.

**Researcher:** *Right, ok, and if you're in the car with your daughter [14 years], is that kind of quality time with her or—*

**Kate:** *Oh absolutely. That's one thing I really rated in terms of with the kids and my relationship with them, that one on one time and that shoulder to shoulder talking time. You know, straight after school, if something's happened in the day, that's when you'll hear about it, not an hour or two later when they've had time to just chill and things. Same with William—you know, I took him to school right through, and I waited for him to say 'Na, I don't really want you to take me to school, I'll jump on the bus' but he never did. And we had some of our best conversations to and from school.*

**Researcher:** *Why do you think that is?*

**Kate:** *I think it's just opportunity. And I always made sure I had something nice for them to eat when I picked them up from school, and you know, I'd just let them chill and then you know 'How was your day?' and I actually wanted to know how their day was, and what was great about it, what was grotty about it, what worked well, what wasn't so great. Just talk really. And I never took calls when they were in the car with me, that was their time.*

**Researcher:** *So it's exclusive time. And do you think that would have been different if they'd kind of come home and then you'd sat down and had a cup of tea and a biscuit, or is there something about the shoulder to shoulder...*

**Kate:** *Definitely, it's the shoulder to—especially with boys, more so I think than girls, boys I think are more responsive when they're not looking you in the eye to talk. They'll talk and talk. Whereas girls tend to be more conversationalists and look you in the eye.*

**Researcher:** *That's really interesting.*

**Kate:** *Oh, it's one of the things I've treasured, people have said to me 'Oh for god's sake, why do you spend so much time taking the kids to and from places?' and I sorta say to them 'Well I actually really enjoy it'. It's often a real talk time, and when I look at the relationship I've got with William and Summer now, I wouldn't take any of it back. Yeah I could have made more money, I could have had more time, but nope, I wouldn't trade it for the world. And I you know I take all the sports teams around the place, you know, how you get to know their friends, the kids' friends—when you're in a car you get to know them actually a lot better than when they jump into their room and then they all clam up because you're an adult. You get them in the car and have a song on, you hear them all singing and going, you know you learn quite a lot about them really.*

Couples also reported that time in the car alone were a valuable point of communication. Robert and Liz, who drive into work together daily took real pleasure in the time spent together every morning and afternoon.

**Researcher:** *There's some quite contradictory research about how people feel about their commute times. You obviously travel together every morning and afternoon. Can you tell me a bit about how you feel about the time that you spend in the car?*

**Liz:** *I really enjoy it. I think it's really good. Because we travel together I really think, I think it's a really healthy time.*

**Robert:** *Yeah, we just use it to chat.*

**Liz:** *Yeah, to ask about each other's days, and just actually communicate. And it's like a 10 minute drive, it's not... and it's not a hard drive, you're not doing anything difficult and we just use it to listen to ZM [radio station] which we enjoy in the morning, they're pretty funny guys and we enjoy that, that gives us a laugh, we have a good chat, talk about what we're going to do for the day and then I'm at work, we're at work before you know it. So it doesn't, I don't call it a commute, it's just a trip to work.*

**Robert:** *It's just time spent together.*

Two further participants commented that car drives were a good chance to talk to their partner, observing that the lack of eye contact made communication easier for their male partners.

**Researcher:** *So the time you spend in the car, how do you feel, what do you do with that time, what's your mental space like?*

**Dawn:** *Ok! That's why we drive as a family I think. Because men being men they talk so well when they're focused on something else. So in fact I'm sure most of the married couples that I've talked to, the car is a really good way for them to be focused on something else and talk! So it's just awesome, we talk about—we have good conversations. I'm sure it's a man thing... I'm sure they've gotta be focused on something else, because when you sit there it's confrontational and also, like side by side is how you communicate with men, not face to face.*

## Alone in the car—transition and personal time

Time alone in the car is a generally enjoyable time for many participants, especially those for whom time alone is otherwise fairly rare. Particularly among primary breadwinners interviewed, many valued their commute time as transition time to mentally prepare for what the day held, and to wind down and process what had happened at work in order to be in a clearer headspace to take up their different role as a parent on arriving home, as found by previous research (see Pazy et al., 1996 and Richter, 1990 as cited in Jain & Lyons, 2008, p. 85). Some even drive home the long way, or stop off



somewhere on the way home, in order to have enough processing time, again similar to findings by Jain and Lyons (2008). For example, Edward from Rolleston said:

*But no, I use [the commute home] as a de-escalation if I've had a stressful time, or something's on my mind. By the time I hit home I know I've got to be dad and that sort of thing, so I'm able to kind of process and hit the ground running when I get home. So that's what I use it mainly for. And as sad as it sounds, if I am feeling particularly 'Urgh' I'll stop at say The Warehouse and just have a walk and look through there just to do something mind-numbing. You know what I mean, just do nothing. So yeah, when I hit home I know I'm gonna be busy... Yeah and I think heading to work sometimes gives me that time to go 'Ok this is what I need to achieve today' and I think if it just took 5 minutes I don't think my head would be in the game. So it's a mind-set, it's preparing yourself and then getting yourself ready for going back home.*

The common practice of extending a commute to allow for more time for transition and preparation for the next destination has been previously established by Jain & Lyons (2008). Kimberley in Halswell also talked about how her former commute was too short to allow adequate transition time:

*So think from here [work] was too close. Because it was only 7 minutes. So, yeah I don't know, but that was too close because it was such a stressful job, I was working in psychiatric health and we'd often have huge events happen, and you just needed time to think before you got home. And so 7 minutes on the way home was too close, you needed like 20 minutes just to actually wind down so that when you got home you could engage in conversation with your husband, or be fully present. I dunno, it was too close. So yeah, I mean there are some great things about living close to where you work, but actually some down time would have been cool... And then you're fully prepared when you come home, you're fully in your role as whatever—you know, husband and wife, mother. Otherwise you have your baggage in your head.*

**Researcher:** *Do you think that this 20 minutes kind of processing time would be standard across like if you were say walking or biking—is it about the time or the distance?*

**Kimberley:** *I feel it's the time, yep. But I think sometimes when you're walking or biking it's a lot easier. And you're usually less distracted as you're going, there's not something on the road that you're listening to, you can just process and walk and think. Yeah, so that is easier processing stuff, but I think it is about the timing. I think that's why we liked running and walking. We just had time to... be... yeah, I dunno. It doesn't really make sense but yeah.*

Tom in Rangiora chose an ideal commute time of 25 minute because he values the opportunity to wind down, while his wife chose a shorter time of 15 minutes. Their exchange follows:

**Researcher:** *Just imagine there's no other constraints whatsoever and you could choose your ideal commute time from house door to work door, how many minutes would you make that trip?*

**Tom:** *I'd say probably 25, just a wee bit longer, just to relax, try and relax, unwind from work before getting home.*

**Lori:** *Yeah see I'd choose shorter because then it's—*

**Tom:** *You might not have to unwind quite as much as I do.*

**Lori:** *No, I don't have as stressful a job as you, I can leave my work if I don't get it done, and leave it.*

**Researcher:** *So you find that time quite good to just unwind at the end of the day and kind of process.*

**Tom:** *Yeah, that's the difference of, getting away earlier, you can relax on the drive home, but if you get away at 5 o'clock you can't relax because you're in first gear, second gear. And you're not unwinding at all, so you can't listen to the music type thing, you can, because you're concentrating on what's happening around you which I guess you should be doing but yeah.*

Many valued the time they have driving alone as one of the rare opportunities to have personal alone time. Three participants with active faith affiliations said they used the time to put on worship music or pray which they highly valued, and another used his morning commute for what he called “loud meditation”, and his evening commute as a time for thanksgiving for the good things in his day. Other participants used time in the car as their rare time available to call and catch up with friends and family members. Some stay-at-home mothers reported almost never being in the car by themselves, or only for very short trips, but many that do sometimes have time in the car alone talked in blissful tones of this time. Two quotes from mothers of young children in Halswell and Linden Grove follow:

**Heather:** *I do enjoy it when I do have that time to myself. Music, I can listen to my music, so... Or the radio*

**Researcher:** *Ah, so that's what you—if you're in the car by yourself, the music's on or the radio's on, and that's a—*

**Heather:** *It's a treat!*

**Researcher:** *Would you say you enjoy your time alone in the car?*

**Michelle:** *I do. Because I can play whatever music I want as opposed to child-specific, husband-acceptable music, you know, I can have whatever I want on. And yeah I can think about things like before or after work or things I want to do in the weekend or whatever I choose to be, because with travelling with a 7 year old in the car is generally, well not that it's a stressful experience but there's always a question about something—‘where are we*

*going?’ or ‘what are we doing?’ or ‘Mum when we get home can we do...?’ So yeah, time by yourself in the car is quite precious.*

Michelle’s comments on having free choice of music resonate with the findings of Bull (2001; 2004) on the car being one of the few places for many where they can listen to whatever they like, however loud they like, away from the gaze of others.

One of the few participants who would take the teleport option if given the chance would do so because of the time it would free up for other necessary tasks. Her commute from Rolleston is around 40 minutes each way. An excerpt from her interview is worth quoting at length because it illustrates the juggling act of parents of young children, and the competing priorities of “getting everything done” and the opportunity for ‘time out’ which is otherwise threatened by ‘time squeeze’ as previously found in studies by Edensor (2011), and Mokhtarian & Salomon (2001):

**Researcher:** *And if you had the choice, if there were no other constraints and you could choose the exact number of minutes between walking out the door at home and walking through the door at work, how many minutes would you spend commuting?*

**Valerie:** *[laughs] Ideally 5 or 10.*

**Researcher:** *Ok, 5 or 10. So you wouldn’t make it longer or shorter?*

**Valerie:** *No, but for me it’s because [my current commute is] 40 minutes that I’m not doing the washing or sorting the... Like for me it’s a time, it is quite nice being able to relax and stuff but you know, it’s an hour and a half each day[total commute time]—that’s time I can’t do other things, or I could go to bed an hour and a half earlier.*

**Researcher:** *That’d be nice.*

**Valerie:** *It would be, but you know I can’t fold the washing or make the school lunches or do all those things in that 40 minutes, I’ve gotta find that 40 minutes somewhere else.*

**Researcher:** *So if you had a 5 or 10 minute trip you’d have an extra hour every day not driving.*

**Valerie:** *Extra to do stuff. Or even just to sit down.*

**Researcher:** *Cool. If it were possible to be teleported to work, would you take the option? Just snap, straight to work?*

**Valerie:** *Yeah I probably would, for those same reasons, the time thing.*

**Researcher:** *And then would you have a sit down with maybe a cup of tea or something when you get home to get yourself in the headspace for the next task?*

**Valerie:** *Yeah I probably would. Although no I probably wouldn’t actually, you just can’t.*

**Researcher:** *You’d hit the ground running again?*

**Valerie:** *Yeah I probably would. But then because you’ve teleported from work you’d still be in that buzz of working and stuff so you’d just go straight through it, whereas if you had a 5 or 10 minute, you’ve kind of had a wee bit of a break, but [if you teleport] you haven’t, so you’d still wanna break. I dunno. Maybe.*

Among the majority of participant households gender roles generally operated along traditional lines, with the women generally bearing a larger burden of work in the household and almost all fathers working full time. Mothers in the sample were more likely to take up the option of teleporting, whereas fathers were more likely to stick with their commute, because of the transition and wind-down opportunity.

**Researcher:** *Ok. If you were able to be teleported to work, would you take the option? Just snap your fingers and you're there?*

**Lori:** *Yea I would. You probably wouldn't Tom but I would. Because then I'd get to do more here before I go.*

**Researcher:** *Right so you'd save the time?*

**Lori:** *Yeah.*

**Researcher:** *Right, in order to have more time to do your morning kind of—all the bits that come with having children?*

**Lori:** *yep. Then I'd be able to get the washing out on the clothes line before I leave for work rather than putting it on the clothes airer or leave it in the washing machine.*

## Productive time for work

For most working parents, and particularly for women and men whose jobs involve a commute of around 20 minutes or more, or whose job involves a lot of driving otherwise, time in the car was considered to be used productively, like Kate in Linden Grove:

**Kate:** *Oh, I always have some music on the go, or quite often I have my hands-free and I will be talking on the hands-free... I do utilise that time to—you know if I've gotta call someone back, or catch up with somebody or whatever, I'll quite often do that while I am driving. Just because it's production time, and down time.*

One participant's husband now has a 45 minute commute from Rolleston to his work in a rural township, which he uses both to make work phone calls, and to listen to podcasts to improve his understanding of an element of his job. In fact, his wife sees benefits in his longer commute. She explained:

**Amy:** *My husband travels from Rolleston to Oxford via the back way, like through Kirwee... and so he uses the time to listen to podcasts or whatever he wants, or he can do business stuff, or have a quiet moment. So 45 minutes there, 45 minutes back kinda thing. So yeah, it's a lot of time in the car, but he comes home very, like when he's home he's home, as opposed to getting home and having 45 minutes of phone calls to make like he used to. He's just done... We used to live in North Beach, so he would travel into town—he's changed jobs now*

*but with his old job everybody was calling him constantly all the time, and so he would be on the phone walking in [home] and talking, and so I was just like 'No, just stay in the car, finish' and then have him come home...It's funny because we used to live in town, the traffic was still almost taking the same amount of time to get to where he needed to go, and the worst case was when the Pricewaterhouse Building got destroyed [in the earthquakes] and he had to drive from North Beach to out here on Shands Road every day, so that commute was horrendous, and it's traffic, whereas this commute's the back way and there's hardly anybody, and there's no angry drivers that just hate the world that time of the day, you know, like here you get stuck in traffic or whatever, but that way is just a lovely kind of country drive, and it's just calm and peaceful and he's just like 'Yeah, see you guys' and breezes out the door, so he doesn't really mind it.*

In total, seven participants reported using their commute or work driving time to make work phone calls.

## Conclusion

This chapter covered firstly key themes emerging in relation to the influence of travel considerations on residential location choice. It lends support to the Center for Neighbourhood Technology's (2010) suggestion that many households are unaware of the true total magnitude of their transport-related expenditure, and that locational decisions may therefore be often considered to not be fully informed or rational. Households' conceptualisation of transport costs are more likely to revolve around the duration of trips and driving and traffic conditions than monetary and distance considerations. For many, rather than transport being a strong consideration when purchasing a property, post-move adaptive behaviours were used to minimise transport burden, such as structuring activities around the new residential location.

In stark contrast to positivist research, this research found that time in the car has very high value for many people, not only as time alone to process, but also for quality time and interactions with loved ones. The value of these activities that occur concurrently with driving were shown to contribute significantly to the social and psychological wellbeing of many participants, and this must not be ignored if we truly seek to understand people's transport habits and motivations.

The positive value of time in the car was found to be heavily dependent on the traffic and road conditions. The high speed, high capacity access to the study sites further out from the city did seem to be a magnet for people in that (at non-peak times at least) they provide fast, smooth and

uninterrupted access to key amenities on Christchurch City's outskirts. The attraction of this was in stark contrast to perceptions of the central city, which were dominated by negative impressions of congested roads, roadworks, noise and a lack of parking. The volume and type of traffic infrastructure was found to have a significant impact on people's travel experience and enjoyment, lending weight to the concept of induced demand: if high speed, high volume motorways which enhance subjective experience and decrease the travel time costs are provided, demand for travel will rise.

## Chapter 7: Discussion and conclusion

This final chapter considers the key findings in relation to the research questions and existing research literature. It contemplates future research possibilities and some policy implications.

Much of the empirical literature on diffuse urban form and transport highlights the disadvantages of sprawl—notably, the physical, social, and psychological costs of long commutes, the high economic costs of vehicle ownership and driving, and loss of productive time at home or at work. Why then is peripheral greenfield development still such a major form of housing expansion?

This research looked at the experience and decision-making of families who live in recently-developed subdivisions to gain an understanding of the lived experience of households with children in such places. While the research initially intended to use a mixed methods approach, it evolved to focus on the qualitative data gathered, as it was through this tool that the most insightful and interesting findings were emerging. The data yielded by in-depth interviews provided valuable and sometimes unexpected findings that add depth and elucidate the lived experience behind statistical generalisations of existing quantitative research (Winchester & Rofo, 2010). It also echoed the findings of more recent mobilities research on the value of time spent in transit. The research was situated in the area of greater Christchurch, New Zealand. While it was designed to gain an understanding of places and urban processes more broadly, some elements of the findings will be specific to the research setting of Christchurch, particularly those related to the impacts of the 2010/2011 Christchurch earthquakes such as the destruction of much of the inner city.

***The first objective of the research*** was to understand family households' primary reasons for selecting their property and their location. Living in a standalone dwelling has been found in overseas literature to be a strong desire among families with children in particular, and indeed the preference for this dwelling type was discovered to be *the* primary non-negotiable attribute for the families in the study. Families with young children in particular generally wanted a garden large enough for their children to play, and many preferred a back section because of road safety and 'stranger danger' considerations.

Desire for a new or recently built home was also a central factor, which again may be a stronger consideration in New Zealand in light of the fact that much of the older housing stock is of poor quality compared to homes of comparable age in Europe and North America. Most participants did not particularly wish to live in a new subdivision, and some would actively prefer not to do so, but newly developed greenfield neighbourhoods are simply where bulk provision of new, warm homes currently occurs. While some families who were unenthusiastic about new subdivisions had adapted to the idea and were now really liking their home and neighbourhood, others were still uncomfortable about living in what they saw as cookie-cutter “Pleasantville”.

The working assumption that the central city holds relevance to Christchurch residents, which underpinned the rationale for study site selection as a function of distance from the inner city, was found to be unsubstantiated. Overseas literature has found that amenities typically provided by inner cities, such as high-skilled specialised jobs, bars, theatres, and other entertainment venues, may be less relevant to families with children (Feijten et al., 2008), particularly young children. Conversely, suburban settings tend to make good provision for family-related amenities like parks and playgrounds (Feijten et al., 2008). The research found a very low affinity with the central city, a fact exacerbated in the particular research context of Christchurch because of the destruction of so many amenities in the city’s core. The lack of appeal for the inner city was not purely due to the absence of amenities or destinations considered relevant by families however, but also the perception of unpleasant, congested driving conditions, and lack of (free) parking which acted as a repellent for many to visit, let alone reside there. This again highlighted how much driving *experience* as related to road conditions like congestion and traffic signals (rather than *distance* or even travel *duration*) is a strong driver of transport-related decisions. The low appeal of the central city increases the likelihood that Christchurch’s form will continue to develop towards a multinucleated city form.

Participants’ negative perceptions and lack of draw to the inner city show that there is much work to do if we are to make Christchurch’s central city attractive to residents. Families with children are unlikely to constitute a major household type of inner city residents in Christchurch given the general cultural desire of families for standalone houses. However, this preference is likely to stem



at least in part from a lack of quality, attractive exemplars of inner city living. The potential for inner cities to be vibrant, attractive, accessible places for families is not currently demonstrated in Christchurch. Much work still needs to be done in terms of amenity provision and awareness raising on this issue if the central city is to reach its full potential as a vibrant, pleasant place to live.

While low density greenfield development provides high amenity levels for those living there, the external costs of such developments are considerable. Leaving aside environmental impacts of sprawl, other costs such as those relating to motorway provision for example are not generally borne by those who use them, but rather through generalised taxes as demonstrated by the motorway expansion currently underway in the greater Christchurch region. Given the present widespread preference for low density suburban living, demand for more efficient dwelling types and neighbourhoods is unlikely to increase until more of the external costs of greenfield development are internalised to those choosing to live there. Robust planning policy which takes full account of economic and environmental costs of different development types, and which internalises these to the extent possible is crucial—and therein lies the tragedy of the superseding of the Urban Development Strategy by the Land Use Recovery plan as outlined in Chapter 3.

With regards to key locational attractors for households in residential decision-making, it became clear that proximity to wider family was an important consideration for many households. This has been found in previous research, such as that of Blaauboer (2011) Mulder (2007) Zhang, Engelman and Agree (2013). Proximity to friends was another key consideration for some households, a factor not raised in the research reviewed. Because proximity to family and friends is so specific to each individual household, it is a variable that is missing from large datasets on which some research into residential location is based, such as that of Zondag and Pieters (2005). Because of its specificity to each household, the proximity of family and friends as a factor in locational decision is difficult to capture empirically in a cost-effective way because of its specificity to each individual household.

***The second research objective*** sought to understand the extent to which households consciously took the transport implications of potential residential locations into account, particularly in view of recent research showing that higher transport-related expenses in peripheral locations may offset the savings associated with the generally lower property costs in such areas (see Mattingly &

Morrissey, 2014; Dodson & Sipe, 2008; Viggers & Howden-Chapman, 2011). In general, few participants were aware of the true total cost of owning and running their vehicles, and many seemed to prefer not to know. Transport expenditure in both time and money seemed for many an unquestioned fact of life, although this was less true for those on more limited incomes who did consciously try to minimise transport. Even for those households who had been conscious that their more peripheral location would be associated with higher petrol costs however, many were surprised at the magnitude of the expenditure increase. These findings support the suggestion of the Center for Neighbourhood Technology (2010) that the disaggregated nature of vehicle ownership and running costs undermines people's consciousness of their true total expenditure.

The lack of awareness or consideration of the true costs associated with different residential locations creates a case for public education and information at the time of house hunting, in order to enable people to make more informed decisions. Rudimentary tools to this effect are beginning to be developed, including a location and travel calculator inspired by the Mattingly and Morrissey's (2014) research on combined housing and transport affordability in Auckland, as cited in Chapter 2. This tool allows people in Auckland, Wellington and Canterbury to calculate approximate transport costs associated with different locations, taking into account the location of their work, their mode of transport and some basic information on housing metrics (see <http://affordability.org.nz/canterbury.html>). As mentioned in Chapter 2, this tool is a work in progress, and currently takes only commute-related expenses into account, omitting other household trip purposes. The improvement and dissemination of such tools should be actively supported by organisations such as local councils in order to assist residents to make more fully informed decisions on the true costs associated with different locations.

Interviews with households with company cars revealed the significant impact of such vehicle access in encouraging or at least facilitating peripheral residential location. Company car access was also unsurprisingly found to diminish incentives to minimise driving, in line with research commissioned by the NZTA (Scott, Currie, & Tivendale, 2012). Company car access was far higher among sample households than across New Zealand. None of the empirical academic research reviewed for this research took company car access into consideration. This element needs to be taken into account

by future research as well as policy review, particularly as access to company cars in New Zealand is growing (Statistics NZ, 2015). Overall, company cars were found to undermine incentives conducive to compact and carbon-efficient cities, and the distortion of incentives they create justifies a closer look at the policy governing their provision. At the very least, a review of the current favourable tax treatment of company cars should be undertaken at the central government level in light of the perverse incentives they create.

Turning to **the third research objective** which was interested in how participants conceptualise location, distance, accessibility and travel time, the findings strongly suggest that travel *duration* and driving *experience* in relation to driving conditions (such as roads conditions, speed limits, congestion) play a bigger role in transport decisions overall than *distance* and *financial cost*, at least in relation to location decision. It was interesting to note that while few households consciously calculated the transport-related financial costs when deciding where to live, many adjusted their transport behaviour in order to minimise petrol and other related expenditure after moving. The research findings indicate that for many families, their home is *the* primary fixture in their lives, around which other elements of their lives were organised, including part-time employment, leisure and children's extra-curricular activities.

Participants were found to strongly prefer driving in free-flowing conditions, and indeed most would choose to travel for a longer duration under free-flowing conditions than to get to a destination via a more direct route that involved stop-start driving conditions. This finding has potential implications for the phenomenon of induced travel. To date, research on induced travel (see for example Noland, 2001; Noland & Lem, 2002) has primarily used increased speed (and therefore reduced travel *duration*) as part of the explanation for why extra road capacity increases demand for driving. The findings of this research indicate that travel *experience* and enhanced driving enjoyment could play an additional role in induced travel, particularly with regard to longer-term component of induced travel in driving landuse change in the form of increasingly far-flung residential developments.

The **fourth research objective** was interested in how people subjectively experience their time in transit. Travel is generally assumed by many positivist research models to be a derived good, that is, a task undertaken purely for the benefit of what lies at the end of the trip rather than the trip having

value in and of itself (Eliasson, 2010). This was not found to be correct. Indeed, four participants reported that they “love driving”. Subjective experience, and the intrinsic positive value of travel is for most people highly contingent on driving and traffic conditions.

The positive value of travel time contradicts assumptions in tools like cost-benefit analysis that travel is merely a means to an end, something that has no utility in and of itself. People’s enjoyment of travel could have significant implications for research models which assume that *time* in the car is a disincentive to living in locations that require regular trips of a certain duration. Rather, such models may be strengthened by considering traffic conditions such as the incidence of congestion which strongly affect driving enjoyment, rather than the simplistic metric of travel duration.

Much of the empirical literature on commuting’s pernicious effects on wellbeing do not take subjective experience of the commute into account. Given the findings that driving context such as congestion makes a significant difference to the enjoyment of driving and stress experienced in a trip, such contextual elements of driving (congestion, incidence of traffic lights, roadworks and other impediments to smooth movement) should be taken into account by research assessing wellbeing impacts of the commute, particularly psychological wellbeing aspects like stress. There are challenges associated with how to capture such subjective elements empirically but given their substantial impact on negative elements of travel experience such as stress and frustration, further research in this area may yield some valuable learning.

The substantial positive value many participants derive from their time in transit is noteworthy. Rather than commuting being a dystopian, alienating experience many people derive much value from their commute time and its concurrent activities such as personal reflection, listening to music, podcasts or the radio, as previously found by other mobilities research (see Bull, 2001, 2004; Cresswell & Merriman, 2011; Jain & Lyons, 2008; Merriman, 2012). In findings reflecting those of Redmond and Mokhtarian (2001), most participants selected a hypothetical ideal commute time of between 10 and 20 minutes, primarily in order to have the chance to prepare for the day ahead, process the day that was and prepare for the role or situation awaiting them at their destination. Again, the driving conditions had a large bearing on some participants’ ability to take advantage of their driving time for these concurrent activities, with the constant ‘stop-start’ nature of sitting in

congestion undermining the ability to reflect, process and relax. Not only was time in the car alone found to have significant value for participants, but time shared in the vehicle with others was reported by many to be a very valuable opportunity to touch base with children and partners, and even to have deep, significant conversations which may not otherwise occur. Because participants' travel was so heavily dominated by one single mode—the car— the research did not explore the value of time spent in transit in different transport modes. This would be a fascinating element for future research to explore.

The evolution in research approach in this thesis highlights the value of allowing research to be data-driven, to remain flexible and to reflect back regularly on the research aims during the process. The aims of this research were to understand key reasons why families moved to subdivisions, what role transport-related considerations played in their original decision, and how they experience transport now. Through reflecting back periodically on this key aim, it became apparent that one research tool in particular—the in-depth interviews—were yielding far richer insight than the other tools, and ultimately provided far more valuable understanding to the motivations, desires, and lived experience of people living in the types of neighbourhoods about which so much quantitative research has been undertaken.

Despite findings that show the benefits offered to families by greenfield development, it remains the case that diffuse development comes with heavy environmental and fiscal burdens. These are not the focus of this research, but understanding the incentives, motivations, and experiences of residents of greenfield areas can lend an insight to enable policy makers to design policy to minimise the costs of such development (particular the externalised costs) while retaining and maximising the benefits offered to residents. While quantitative research is crucial in describing and understanding the costs of particular development trajectories, qualitative research has much to offer in furthering the understanding of human incentives, motivations and experiences. Such insights are needed to enable decision makers to design policy that is more likely to achieve its intended outcomes.

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# Appendices

## Appendix A: One Week Travel diary

Period for which the diary was completed: \_\_\_\_\_ to \_\_\_\_\_

Your name: \_\_\_\_\_

Vehicle Odometer reading at **start** of week: \_\_\_\_\_ km

Vehicle Odometer reading at **end** of week: \_\_\_\_\_ km

*This travel diary aims to capture your activities outside the home, and how you travelled there, for **7 consecutive days, starting any day**. If you can't fill it out for this entire period, please just do as much as you are willing to. Please start a new sheet for each day.*

*In order to make your data as useful as possible, please read through the tips and the examples below. If anything is at all unclear or you have any questions, please don't hesitate to contact me – call or text 021 212 3564 or email me at [anne.heins@pg.canterbury.ac.nz](mailto:anne.heins@pg.canterbury.ac.nz).*

*Once you have completed the diary, please contact me. Thank you very much for your time and effort filling out this travel diary,  
Anne Heins*

### Tips:

- *Location or address: please include just enough detail to give me a sense of what type of location it is and to look up its location on Google maps e.g. Riccarton Mall; Wairakei School; Mum's house at 386 Clyde Road; CCC in Hereford St, friend's house at corner Arnold St and Colenso St.*
- *Mode of transport: If you used more than one mode, please state the one you used for the furthest distance. Please include destinations walked to.*
- *Return trips: Please only record a return trip as one journey where you spent less than 5 minutes at your destination (see dairy example below)*

### Example:

Date	What is the first activity you did away from your home?	What is the location/address of the activity?	What time did you leave to get there? (to nearest 5 mins)	What time did you arrive? (to nearest 5 mins)	What was the main mode of transport used to get there?	Did anyone travel with you, if so, who?
17.8.14	Take kids to school	Ilam Primary School	8.15	8.40	Car	Yes, my 2 kids
	Where did you go next?					
	Work	Tate Electronics, Wairakei Road	8.40	9.05	Car	No
	Supermarket shopping	New World, Rolleston Drive	5.30	5.45	Car	No
	Home	379 Clyde Road	6.30	6.45	Car	No
	Dairy (return trip)	Corner Ilam & Clyde Roads	8.05	8.10	Bike	Yes, my son on his bike

[illegible]



## Appendix B: Questionnaire

### Living in Christchurch's new neighbourhoods: Residential choice and impacts of housing location on travel behaviour and experience



#### Pre-discussion Questionnaire

This survey is comprised of four sections. It is designed to help you think about your experience living in this area, and find out a little bit about your reasons for moving here. As well as this the last section enquires about some basic demographic details.

Please note that we will most likely discuss the answers you supply here in the discussion that follows.

We understand that choices and experiences around housing and housing location are nuanced and complicated in different ways for different people, and at times it may appear confusing what the questions in this survey are asking. Therefore, please feel free to seek clarification about any of the questions, or raise any concerns with the researcher, who will be with you while you fill out this questionnaire.

#### Section One: Your previous and current residence

1. Where did you live previous to your current address (region, city and suburb)?

\_\_\_\_\_

2. How long did you live at this previous residence (months / years)? \_\_\_\_\_

3. What were the main reasons for moving to your current house?

4. When did you move into your current address?

\_\_\_\_\_/\_\_\_\_\_  
Month      Year



## Section Two: Your choice of residence and location

The following section attempts to briefly look at why you choose to live in particular places.

Please consider the following in regards to how important these factors were in choosing your current residence.

**1. The residence is close to family**

Not important    1       2       3       4       5       6    Very important    N/A

**2. The residence is affordable/good value**

Not important    1       2       3       4       5       6    Very important    N/A

**3. The residence is close to amenities I value (for example, schools, shops or community facilities)**

Not important    1       2       3       4       5       6    Very important

**4. The residence appears safe (both from natural disasters and crime)**

Not important    1       2       3       4       5       6    Very important

**5. The residence is close to work**

Not important    1       2       3       4       5       6    Very important

**6. I am familiar with the area/have past experiences in the area**

Not important    1       2       3       4       5       6    Very important

**7. I know people in, or around, the area**

Not important    1       2       3       4       5       6    Very important

**8. I saw potential for property values to increase in the future**

Not important    1       2       3       4       5       6    Very important

**9. The residence is close to transport routes/public transportation**

Not important    1       2       3       4       5       6    Very important

**10. The residence is of good quality and easy to maintain**

Not important    1       2       3       4       5       6    Very important

**11. The residence is better value for money than comparable properties closer to central Christchurch**

Not important    1       2       3       4       5       6    Very important

### Section Three: Your experience of your residence, neighbourhood and transport

Please consider the following in regards to your time spent travelling and your current place of residence:

<i>I find useful things to do during my driving time</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I had little choice about where to live</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I feel like I belong to this community</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I worry about the impact on my household budget if petrol prices go up</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I would prefer to live closer to central Christchurch</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I am happy with the location of my house</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I am happy with my property</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>It is worth the travel time and distance for the property I live in</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I generally enjoy my time in the car</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I wouldn't mind living farther out from central Christchurch</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I could not afford to live where I really wanted</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I regularly stop and talk with people in my community</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I find that I am spending more time travelling than I had anticipated</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>I can see myself living in this neighbourhood for a long time (over 5 years from now)</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree
<i>The cost of transport adds up to more than I had anticipated</i>	Strongly Disagree	Disagree	Tend to Disagree	Tend to Agree	Agree	Strongly Agree

#### Section Four: Your Household

- I am (please tick):    ☐ Male    ☐ Female    ☐ Other
  
- Please tick the appropriate box in regards to your age:  
  
☐ 18-19    ☐ 20-29    ☐ 30-39    ☐ 40-49    ☐ 50-59  
☐ 60-69    ☐ 70+
  
- What is your primary occupation? (Tick one only)  
☐ Full time employment  
☐ Part time employment  
☐ Homemaker  
☐ Student  
☐ Retired  
☐ Unable to work  
☐ Other (please specify): \_\_\_\_\_
  
- How many people live in your household? \_\_\_\_\_
  
- Please detail the other people who live in your house  
Relationship to you (e.g. wife / partner / son / flatmate etc)  

1. _____	Age: _____
2. _____	Age: _____
3. _____	Age: _____
4. _____	Age: _____
5. _____	Age: _____
6. _____	Age: _____
7. _____	Age: _____
  
- Do you rent or own the property at your current address?  
☐ Rent  
☐ Own  
☐ Other (Please explain if you feel comfortable doing so)

- How many cars does your household have? \_\_\_\_\_
- Are any of these company cars? If yes, how many? \_\_\_\_\_
- How much would you estimate your household spends on vehicle travel *per month* (including petrol, registration, WOF, car maintenance and parking, but not depreciation of the value of your car/s)? \_\_\_\_\_
- How many people in your house have their restricted or full licence? \_\_\_\_\_
- How many bedrooms does your house have? \_\_\_\_\_
- What year was your house built (approx.)? \_\_\_\_\_
- What is your combined household income before tax (please tick)?
  - ☐ Less than \$10,000
  - ☐ \$10,000-\$19,999
  - ☐ \$20,000-\$29,999
  - ☐ \$30,000-\$39,999
  - ☐ \$40,000-\$49,999
  - ☐ \$50,000-\$59,999
  - ☐ \$60,000-\$69,999
  - ☐ \$70,000-\$79,999
  - ☐ \$80,000-\$89,999
  - ☐ \$90,000-\$99,999
  - ☐ \$100,000-\$149,000
  - ☐ More than \$150,000
  - ☐ Prefer not to say
- How often would your household use the following forms of transport in a typical week?
  - 1 = never / less than once a week
  - 2 = once a week
  - 3 = 2 to 3 times a week
  - 4 = almost daily
  - 5 = more than once a day
  - ☐ Car
  - ☐ Bike
  - ☐ Public Transport
  - ☐ Walking / scooter
  - ☐ Motorbike/motorised scooter
  - ☐ Other (please state): \_\_\_\_\_

*Thank you for taking the time to fill out this questionnaire. Please hand it back to the researcher, who will outline how the next part of the discussion will take place. If you have any questions or concerns at this or any point please do not hesitate to ask.*

## Appendix C: Interview Guide

### ***Living in Christchurch's new neighbourhoods: Residential choice and impacts of housing location on travel behaviour and experience***

#### **Interview: Discussion Points and Questions**

Note that the questions below are a guide only, and are there to prompt the interviewer rather than form a script. Which questions are relevant will depend not only on participants' answers to the questionnaire, and on which topics have already been covered during the course of the conversation.

Matters of clarification to begin with:

- Introduce concept of semi-structured interview.
- Invite them to ask questions and also add points of view that may not have been directly asked for in a question if they wish to.

#### **Section One: Your choice of residence and location**

- Would you like the opportunity to see the whole transcript, or would you prefer me to email you any quotes I'd like to use in the research for you to get a chance to veto them?
- So I see you've lived here for xx months/years. Can you talk to me a little bit about your experience of looking for a house to live in/buy? What kinds of considerations do you remember thinking about? Which factors were most important? *(Use questionnaire answers to prompt discussion)*
- What were some of the key things you remember that attracted you to this house?
- Was it more this particular house or property you were attracted to, or were you thinking a lot about what kind of area / neighbourhood you wanted to live in?
- What were some of the key things you remember that attracted you to this area / that you liked about this area when you were house-hunting?
- Would you say that the actual house was more important than the area for you?
- Did you particularly want to live in a newly built subdivision?
- Was timing a major factor in where you ended up buying? For example, were you on a certain timeframe for buying a house?
- What do you like or dislike about the look and feel of the neighbourhood you live in?

- Were there other areas in the city that you considered buying in?
  - If yes, which areas?
  - Why did you finally decide on your current home? (*Use questionnaire answers to prompt discussion*)
  - If no, what was it about this area that particularly attracted you?
- If cost weren't a consideration, would you change where you live, and if so, what would you change?
- Did you feel that you had to make trade-offs between land size, house size, house quality and location?  
Can you talk me through some of the trade-offs you made?
- Is there anything that puts you off about the idea of living closer to town?
- How long are you planning on spending in your current residence? (i.e. hinting at what purpose the home serves, is it likely to change with a future life stage change?)

## **Section Two: Travel**

- To what extent did you think about travel when you were deciding where to buy a house?
- When you think about the travel, is it mainly time, convenience, money that you think of? Or other?
- Do you think that petrol price rises would impact on what it's like to live here? What impact would they have on your household?
- Can you name some of the frequent destination / activities you take part in that are close to your home? (Schools, leisure, shops etc.).
- Do you feel like this is a community? Why, why not?
- Have many of your activity locations changed since moving here? I.e. have your children shifted schools, sport clubs etc?
- How many cars does your household own? Has this changed since moving here?
- Are any of your cars company cars? Do you have a fuel card?
- What are the conditions of driving the work car? Do you have limit to personal use?
- Do you think having a work vehicle changes the way you think about driving and transport?
- Look over questionnaire answers and probe where interesting

### **Section Three: Your experience of everyday travel**

- I see that your main form of transport is xx (if it's by car continue down, if not go to next section).
- How long does it normally take you to go all the way from your home to your place of work / other main destinations?
- People have very different experiences of commuting and day-to-day driving – some consider it wasted time or find driving stressful, others enjoy the time they spend driving. Can you talk to me a little about how you feel about the time you spend on the road? (Potential prompts: city driving vs highway driving, congestion, whether they travel with others in the car)
- If you could choose your ideal amount of time to commute, how many minutes would your commute take, door-to-door?
- What are the reasons you would prefer not to have a shorter commute time?  
And a longer one?
- Imagine you were able to be teleported to work / key destinations – would you take up this option?  
Why/why not?
- If you think about a trip to work (or other regular destination) and you had the choice, would you prefer to spend 25 minutes travelling on the open road to get there, or spend 15 minutes getting there via a more direct route but where you had to stop and start a little because of the traffic?
- Do you do any other activities while driving (listen to podcasts, radio or music, talk on the phone, do work)? (Use questionnaire answers to prompt discussion).
- What are the positive things about your driving time that you can think of?
- What are the negative things about your driving time that you can think of?
- When you are driving, how often do you have someone else in the car?
- What kinds of things are usually going on in your mind while you're driving? What are you thinking about?
- Have any of your leisure or social activities and habits changed since moving here?
- How much would you estimate you spend on petrol weekly as a household? (Or bus fares etc. if relevant depending on their questionnaire answers)
- Do you think you would think differently about car travel if you did not have a company car?
- How often do you drive your children to appointments or activities?

- How much time per week on average would you estimate you spend driving your children around for activities and commitments of theirs?
- Are there any other transport modes they use?
- Do you enjoy the time spent with your children in the car? Would you say it's quality time?
- Do you know of any other people in the area who would be happy to help with the research?

### **Section 3 Alternative if driving is not the main form of transport:**

- Research overseas has shown that people have very different experiences of their time spent travelling, especially by different modes. Can you talk to me about how you feel about the time you spend travelling?
- What do you enjoy about the time you spend on the bus / biking / etc?
- What do you dislike about the time you spend on the bus / biking / etc? What would you change about your journey if you could?
- How much would you estimate you spend on travel weekly as a household? (Petrol, bus fares etc. depending on their questionnaire answers)

### **Section Four: Demographic and household information**

- Clarify any answers where necessary
- Ask if they have anything they would like to add



## Appendix D: University of Canterbury Human Ethics Committee approval letter



### HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen  
Email: [human-ethics@canterbury.ac.nz](mailto:human-ethics@canterbury.ac.nz)

Ref: HEC 2014/88

2 July 2015

Anne Heins  
Department of Geography  
UNIVERSITY OF CANTERBURY

Dear Anne

Thank you for your request for an amendment to your research proposal "Living in Christchurch's new neighbourhoods: residential choice and impacts of housing location on travel behaviour, budgets and experience" as outlined in your email dated 25 June 2015.

I am pleased to advise that this request has been considered and approved by the Human Ethics Committee.

Yours sincerely

A handwritten signature in black ink, appearing to read 'L. MacDonald'.

Lindsey MacDonald  
*Chair, Human Ethics Committee*

**Living in Christchurch's growing neighbourhoods:  
Residential choice and impacts of housing location on  
travel behaviour and experience**



**Information Sheet for Research Participants**

Kia ora,

My name is Anne Heins, I am currently completing a Master's Thesis in Urban Geography at the University of Canterbury. As part of this degree, I am undertaking a research project seeking to understand the travel habits, and attitudes to transport, of residents of some of Christchurch's fastest-growing residential areas.

Over the past decade, and in particular since the earthquakes, many Christchurch residents have shifted to residential subdivisions, for example those in Rolleston, Halswell, Linden Grove and Rangiora. I am interested in what factors were most important to people in deciding to shift to these neighbourhoods, and the impacts these shifts have had on travel behaviour, and to residents' experience of their day-to-day transport needs.

If you decide to participate in this research, you will be asked to fill out a travel diary for up to one week which details how you got to each of the places you went during your day, how long it took and where the activity was. Ideally this diary would be filled out by each adult over 18 in your household, though this is not a requirement. You will then be asked to take part in a face-to-face interview with me at a time and place of your convenience. The interview includes filling out a short questionnaire.

Your help with this research is completely voluntary. You do not have to answer any questions you do not want to. With your permission, I would like to audio-record the interview – this will help me to more accurately collect the information given – but the recording can be stopped at any time at your request. Furthermore, you will have the opportunity to review a transcript of your interview if you request this.

You may also withdraw at any time, and if you do so any information you have provided will be removed from the project database. This will be possible until the final draft of the thesis is being prepared in March 2015.

You will not be individually identified in any publications or presentations arising from the research. Your name will never be used in association with any individual quotations and potentially identifying details (such as details of your experiences) will never be used or made public.

The final thesis will be publicly available via the University of Canterbury library database, and may on completion be submitted for publication in an academic journal in conjunction with the researcher's supervisor.

If you are interested in receiving a copy of the research, please provide your email address to me at any time, and I will email you a copy once the research is completed in May 2015.

All data collected for the study will be kept in locked and secure facilities and/or in password protected electronic form. Only myself and my research supervisor will have access to the original data. The data will be destroyed five years after the completion of the research.

This research has been reviewed and approved by the University of Canterbury Human Ethics Committee. Questions about this research can be directed to me or to my supervisor, Professor Simon Kingham, Geography Department, University of Canterbury. Phone: 364 2893 or email: [simon.kingham@canterbury.ac.nz](mailto:simon.kingham@canterbury.ac.nz).

Thank you for considering helping me with this research.

Anne Heins  
Masters Student  
Geography Department  
University of Canterbury  
Phone or text: 021 212 3564  
Email: [anne.heins@pg.canterbury.ac.nz](mailto:anne.heins@pg.canterbury.ac.nz)

## Appendix F: Participant consent form

### **Living in Christchurch's new neighbourhoods: Residential choice and impacts of housing location on travel behaviour and experience**



#### **Consent Form for research participants**

I have read the project information sheet and have had the opportunity to ask questions. I understand the general purpose of the project, that it is an independent study, and that my participation will contribute to a better understanding of the residential choices people make, and how these affect transport behaviours and experiences.

If I volunteer to take part in the research, I understand that I will be asked to complete a basic travel diary, a questionnaire on my housing location decisions and my transport habits, and a face-to-face interview of up to one hour.

I understand that my participation is voluntary and that I may withdraw at any point until the thesis is in its final draft in March 2015. I understand that there is no pressure on me to answer any questions I do not want to. Furthermore, I understand that I will be given the chance to review a written transcript of the interview if I request this. Any direct quotes intended to be included in the research will be emailed to me and I will have the right to veto their use.

I understand that the information I provide will be used to inform the study findings, but that I will not be individually identified in any publications or presentations of the research. My name will remain anonymous and will not be associated with any quotations. No identifying information will ever be used.

I understand that if I am under the age 18, my parent or guardian must sign their consent for me to contribute to this research.

I understand that all data collected for the study will be kept in locked and secure facilities and/or in password protected electronic form at the University of Canterbury. Only Anne Heins, the Masters student leading the research project, and Prof. Simon Kingham, the research supervisor, will have access to the original data. The data will be destroyed within five years of the research being completed.

I can request a copy of the study findings and will indicate below whether I wish to receive a copy of the research once completed. I understand that the final thesis will be publicly available via the University of Canterbury library database, and may on completion be submitted for publication in an academic journal in conjunction with the researcher's supervisor.

I understand this research and the interview questions have been reviewed and approved by the University of Canterbury Human Ethics Committee, and that I can contact the lead researcher or her supervisor at any time using the details supplied on the information sheet if I would like any further information about the study. I can contact the research supervisor if I have any complaints about the research process.

**I confirm that I understand my rights as a participant in this study, as outlined on the previous page, and that I consent to participating in the research on this basis.**

\_\_\_\_\_  
Name of Participant (please print)

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of parent or guardian (if participant is under 18)

\_\_\_\_\_  
Date

*Would like to receive a copy of the final thesis via email in June 2015?*

☐ Yes please

☐ No thanks